DOCUMENT RESUME

ED 183 080 HE 012 334

TITLE	Guide to Graduate Departments of Geography in the United States and Canada 1977-1978.
INSTITUTION	Association of American Geographers, Washington, D.C.
PUB DATE	77
NOTE	268p.
AVAILABLE FROM	Association of American Geographers, 1710 Sixteenth St., N.W., Washington, DC 20009 (Institutions and AAG nonmembers, $4.00; AAG members and prospective graduate students, $2.00; bulk rates available)
EDRS PRICE	MF01/PC11 Plus Postage.
DESCRIPTORS	Academic Rank (Professional); Admission Criteria; College Faculty; Courses; Degrees (Titles); *Departments; Doctoral Degrees; *Doctoral Programs; Foreign Countries; *Geography; *Geography Instruction; Graduate Students; *Graduate Study; Higher Education; Masters Degrees; Physical Facilities; Publications; Research Opportunities; Specialization; Student Financial Aid; Universities
IDENTIFIERS	*Canada; Department Heads; *Masters Programs

ABSTRACT

In its tenth edition, the guide is designed to assist college and university departments in answering the inquiries from students about graduate training in geography. One hundred twenty U.S. and 23 Canadian institutions are listed. The information given for each university includes: department name; degrees offered; number of degrees awarded in the period July 1976-June 1977; graduate students in residence, and those not in residence; department head; an address to write to for further information; a description of the programs and research facilities; academic plan, admission requirements, and financial aid; publications; and program staff names, ranks, and areas of specialization. A comprehensive staff listing and a geographical index are appended. (MSE)

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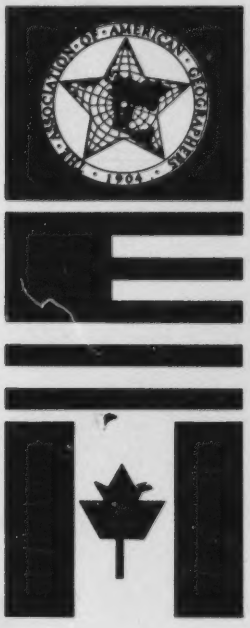
Guide to Graduate Departments of Geography in the United States and Canada 1977-1978



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EDUCATION

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Participating departments will be given a 20% discount for bulk orders of ten or more copies.

Six copies of the *Guide* will be sent free of charge to the participating departments.

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Published by the
Association of American Geographers
1710 16th Street, N.W.
Washington, D.C. 20009
Printed in U.S.A.

Library of Congress Catalog Card Number 68-59269

ISBN 0-89291-126-3

PREFACE

This is the tenth edition of the *Guide to Graduate Departments of Geography in the United States and Canada* designed to assist college and university departments in answering the many inquiries received from students concerning graduate training in geography. It provides a comprehensive listing of information about requirements, course offerings, financial aid, and personnel for colleges and universities.

The cooperation of staff members of participating departments has been excellent. Department chairpersons and secretaries have worked with the production editor, Jane Castner, who is responsible for organizing and copy editing all material. Appreciation is expressed to the many individuals who have made this *Guide* possible.

We hope that the *Guide* will continue to be used profitably by both students and faculty members in facilitating the entry of students into graduate geography training.

J. Warren Nystrom
Executive Director
Association of American Geographers

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University of Akron

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S.

GRANTED 7/1/76–6/30/77: 6

GRADUATE STUDENTS IN RESIDENCE: 19

NOT IN RESIDENCE: 31

HEAD: Allen G. Noble

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Allen G. Noble, Department of Geography, The University of Akron, Akron, Ohio 44325 Telephone (216) 375-7620

PROGRAMS AND RESEARCH FACILITIES: The Master of Arts in Geography degree is designed for those graduate students who wish to pursue a traditionally oriented master's program in geography. A thesis is required.

The Master of Science in Geography is structured to fill the needs of those graduate students who wish to pursue a program strongly oriented toward quantitative analysis. A thesis is not written, but at least 12 quarter hours of advanced statistics courses must be successfully completed.

Facilities include, in addition to air-conditioned general classrooms and faculty offices, a completely modern cartographic drawing laboratory, with adjoining darkroom and major equipment rooms, an urban analysis laboratory, a physical geography laboratory, graduate student offices, and a selected map, air photo and remote sensing research collection. Major equipment includes Kelsh stereo plotter, digital plotter, electronic calculators, key punch machine, remote computer terminal, overhead map enlarger, field plotters, ERTS zoom transferscope, three dimensional Perspektomat, headliner and varityper, industrial camera, vacuum frame, and map scale changers. A laboratory for cartographic and spatial analysis operates as a part of the Department. Academic emphasis is upon cartography, planning, urban geography, environmental resource planning, and Asian geography.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The academic plan requires six quarters. The plan consists of required technique courses in geography and electives in geography and related fields. Electives include traditional course work, seminars, advanced technique courses and research.

Graduate geography programs are open to qualified students with either an undergraduate major in geography or a major acceptable to the department. Students with inadequate background in geography will be expected to remedy these deficiencies. No foreign language is required for the degree.

Grants are available in the form of teaching and research assistantships.

The Department operates an urban planning internship program with local planning agencies. Interns are paid an amount equivalent to that of teaching assistants (plus compensation for fees) and they work as planners gaining experience as well as receiving academic credit for that experience. Loan facilities are also available.

The national offices of the Pioneer America Society are housed in the Department. Publications produced in the Department include *Ohio Geographers: Recent Research Themes* and *Bulletin of Asian Geography.*

STAFF:

Ashok Dutt, Ph.D., Patna (India), Professor of Geography and of Urban Studies—urban, regional and urban planning, South Asia, Southeast Asia

Lathardus Goggins, Ph.D., Saint Johns, Assistant Professor—Africa, recreation, Anglo-America, climatology, conservation

Edward W. Hanten, Ph.D., Pittsburgh, Professor and Director of the Center for Urban Studies—urban, industrial location, regional methodology, U.S.S.R.

Vernon Harnapp, Ph.D., Kansas, Assistant Professor—physical, Latin America, agriculture, educational techniques

Albert Korsok, Ph.D., Illinois, Associate Professor—Europe, Soviet Union, economic, history of geographic thought

Lawrence Ma, Ph.D., Michigan, Associate Professor—East Asia, cultural, political

John Mulhauser, J.D., Akron, Assistant Professor—urban, economic, Anglo-America, cartography, remote sensing

Thomas Nash, Ph.D., Kent State, Associate Professor and Director of the Urban Planning Internship Program—planning, climatology, cartography

Allen G. Noble, Ph.D., Illinois, Professor, Head of the Department—South Asia, cultural, settlement landscape

Gerald Pyle, Ph.D., Chicago, Associate Professor of Geography and of Urban Studies—urban, quantitative methods, Latin America, spatial analysis

University of Alabama

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

DEGREES OFFERED: M.S., Certificate in Urban and Regional Planning

GRANTED 7/1/76-6/30/77: 1 M.S.

GRADUATE STUDENTS IN RESIDENCE: 7

NOT IN RESIDENCE: 3

HEAD: W. Gary Hooks

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Walter F. Koch, PO Box 1945, University, Alabama 35486
Telephone (205) 348-5095

PROGRAMS AND RESEARCH FACILITIES: The Master of Science degree is designed for those graduate students who wish to pursue a traditionally oriented master's program in geography. Graduate work and research emphasize both theoretical and applied studies. Current areas of investigation include: urban and regional planning, remote sensing and its application to environmental problems, computer cartography, Latin America, transportation, energy and society studies, political and regional geography.

The Department is equipped for field work and laboratory studies. Facilities include: a modern cartographic laboratory, darkroom, U.S.G.S. Map Library, weather station, aerial photo library, easy access to Univac 1110 computer facilities and Univac terminals, Map-o-graph and zoom transferscope.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester System. The academic program requires the completion of at least 24 semester hours with at least 12 hours in courses numbered 500 or above. A thesis, for which six semester hours is granted, is required. The program consists of required technique courses in geography and electives in geography and related fields. The Certificate in Urban and Regional Planning, an option, includes required courses in political science (public administration) and economics.

The graduate geography program is open to qualified students with either an undergraduate major in geography or a major acceptable to the department. A combined score of at least 1000 on the aptitude portions of the GRE and an undergraduate B average are required for unconditional admission.

Teaching and research assistantships starting at $2800 for the academic year are regularly granted to well-qualified students. Out-of-state tuition is waived for departmental assistants. Part-time employment by the Geological Survey of Alabama is also available by arrangement.

STAFF:

H. Donald Hays, M.A., Michigan, Professor and Director of the Urban and Regional Planning Program—microclimatology, land use, planning

W. Gary Hooks, Ph.D., North Carolina, Professor—geomorphology, general geology

Frank D. Huttlinger, M.S., Pennsylvania State, Assistant Professor—cartography, air photo interpretation, Latin American studies

Walter F. Koch, Ph.D., Alabama, Professor—political, world regional, Europe, Soviet Union, Far East

Neal G. Lineback, Ph.D., Tennessee, Associate Professor—urban, economic, computer geography, geographical inventories

David C. Weaver, Ph.D., Florida, Associate Professor—urban, planning, economic

Appalachian State University

GEOGRAPHY DEPARTMENT

DEGREES OFFERED: M.A., M.A. for teachers

GRANTED 7/1/76–6/30/77: 4

GRADUATE STUDENTS IN RESIDENCE: 13

NOT IN RESIDENCE: 4

CHAIRMAN: Terry E. Epperson

FOR CATALOG AND FURTHER INFORMATION WRITE TO: H. Daniel Stillwell, Chairman, Graduate Committee, Geography Department, Appalachian State University, Boone, North Carolina 28608
Telephone (704) 262-3000

PROGRAMS AND RESEARCH FACILITIES: The M.A. in Geography allows emphasis on areas of interest varying from physical and cultural geography to urban/rural planning and recreational site development. Beyond a set of core courses, lecture, independent study, internships and special topics, courses are available with which an individualized program of study can be designed. Also, two tracks in the M.A. for teachers program allow preparation for teaching in the junior/community college or at the secondary school level.

The geography department occupies the fourth floor of a modern science facility adjacent to the main library and contains well equipped cartographic/photo interpretation/remote sensing lab, map library and dark room facilities. A programmable calculator, supplemental to the nearby university computer facility, is available within the department.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Graduate geography programs are open to qualified students with an undergraduate major in geography or a major approved by the graduate committee. A number of assistantships are available. Stipends range from $1500-$3150 per year with out-of-state tuition waived in selected cases. Internships in regional, urban and environmental analysis and planning are normally available with stipends ranging to $500 per month during the internship period.

STAFF:

Terry E. Epperson, Ph.D., Tennessee, 1960, Professor and Chairperson—economic, Asia, Southern Appalachia

Ole Gade, Ph.D., Michigan State, 1972, Associate Professor—migration, urban and regional development and planning, geographic theory, quantitative methods, Europe

William Imperatore, Ed.D., Georgia, 1970, Professor—geographic education, meteorology, physical

Robert L. Keber, Ph.D. candidate, London School of Economics, Assistant Professor, AIP—community and regional planning, interaction theory, environmental design

Robert E. Reiman, Ph.D., Florida State, 1964, Professor and University Coordinator of Long Range Planning, AIP—environmental analysis, planning theory, Caribbean, Soviet Union

H. Daniel Stillwell, Ph.D., Michigan State, 1961, Professor—physical, biogeography, remote sensing, field techniques, cartography, recreational land use

Roger A. Winsor, Ph.D., Illinois, 1975, Assistant Professor—historical, environmental perception, behavioral, political, research methods

Arizona State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A. in Education, Ph.D.

GRANTED 7/1/76–6/30/77: 17 M.A., 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 52 M.A. 13 Ph.D.

CHAIRMAN: Melvin G. Marcus

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Melvin G. Marcus, Department of Geography, Arizona State University, Tempe, Arizona 85281 Telephone (602) 965-3471

PROGRAMS AND RESEARCH FACILITIES: The Master's program requires 30 semester hours. In general, there is a program designed for those planning to continue their graduate career at the Ph.D. level; a program for those who are interested in teaching careers at the High School or Two-Year College levels; a program for those interested in non-teaching careers with urban or regional planning commissions, Federal, State or local governmental agencies, or private industry; and a program for those wishing to specialize in spatial analysis of land use. Every effort is made to arrange each student's program to fit his interests, needs, and career objectives.

The Ph.D. program emphasizes resource geography and includes such areas as climatology; land use dynamics; analysis of specific resource use; and the geography of environmental change and environmental quality.

The large number of faculty and their diverse training provide for a wide range of course offerings and research guidance to include nearly all systematic or regional interests on the part of the students. The Department is especially strong in the areas of physical, particularly climatology, urban, land use, environment, and Latin American geography, and actively participates in several university

interdisciplinary programs such as the Environmental, Urban, Latin American, Asian, and American Studies Programs. Faculty interest combined with the location of the university in the greater Phoenix metropolitan area in southwestern United States provides an ideal laboratory for urban geography, arid land research, and cultural geography associated with nearby Indian tribes. Northern Mexico is within easy reach, affording excellent opportunities for field studies by persons with an interest in Latin America.

The Department is located in a modern building with a wide range of research equipment. A new library recently constructed, containing almost 2 million volumes, is well endowed with holdings in geography and related fields.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Academic plan—semester system. Admission requirements for M.A.—undergraduate major in geography or 15 semester hours in geography and related fields, with a B average for the last two academic years; for Ph.D.—Master's degree in geography or related field or equivalent, and B average at the graduate level.

Teaching assistantships, university scholarships, and other awards are available. Stipends range from $3750 to $4500 for the academic year. Out-of-state fees waived for graduate assistants and associates.

STAFF:

William J. Acker, Ph.D., Syracuse, 1969, Associate Professor—regional, economic, military, Anglo-American

Frank T. Aldrich, Ph.D., Oregon State, 1972, Assistant Professor—biogeography, land use, climatology, cartography, field methodology

Virgil R. Baker, Ph.D., Utah, 1954, Professor—landforms, air photo interpretation, map interpretation, physical, Western United States and Canada

Anthony J. Brazel, Ph.D., Michigan, 1972, Associate Professor—climatology, physical, alpine, Arctic

Malcolm L. Comeaux, Ph.D., Louisiana State, 1969, Associate Professor—cultural, historical, history of geographic thought

Robert W. Durrenberger, Ph.D., UCLA, 1955, Professor and Director, Laboratory of Climatology—arid lands, physical, resource, Southwestern United States

Melvin J. Frost, Ph.D., Florida, 1964, Assistant Professor—land use, agricultural, geographic education, Latin America

Patricia Gober-Meyers, Ph.D., Ohio State, 1975, Assistant Professor—regional analysis, population, cultural, Europe, North America

L. Lloyd Haring, Ph.D., Iowa, 1959, Professor—political, social, research methods

Ray Henkel, Ph.D., Wisconsin, 1971, Assistant Professor—agricultural, geographic thought, Latin America, Southeast Asia

John F. Lounsbury, Ph.D., Northwestern, 1951, Professor and Director, Center for Environmental Studies—physical, field methodology, land use and planning, research methods, Latin America

Melvin G. Marcus, Ph.D., Chicago, 1963, Professor and Department Chairman—physical, climatology, glaciology, environmental

W. Donald McTaggert, Ph.D., Australian National, 1963, Professor—urban, cultural, Southeast Asia

Robert C. Mings, Ph.D., Ohio State, 1966, Associate Professor—economic, recreational, Latin America

L. Mayland Parker, Ph.D., Cornell, 1955, Professor—agricultural, land economics, cultural, rural economic and community development

Charles S. Sargent, Jr., Ph.D., UC, Berkeley, 1971, Associate Professor—urban economic, South America, Europe

Leo E. Zonn, Ph.D., Wisconsin-Milwaukee, 1975, Assistant Professor—urban, land use, social, population, quantitative methods

One additional faculty member to be added in Fall 1977.

University of Arizona

DEPARTMENT OF GEOGRAPHY, REGIONAL DEVELOPMENT, AND URBAN PLANNING

DEGREES OFFERED: M.A., M.Ed., Ph.D. in Geography; M.S. in Urban Planning

GRANTED 7/1/76–6/30/77: 9 M.A.

GRADUATE STUDENTS IN RESIDENCE: 9 M.A. 6 Ph.D.

NOT IN RESIDENCE: 2 M.A. 0 Ph.D.

HEAD: Richard W. Reeves

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Richard W. Reeves, Department of Geography, Regional Development, and Urban Planning, University of Arizona, Tucson, Arizona 85721
Telephone (602) 884-1040

PROGRAMS AND RESEARCH FACILITIES: Candidates for the Master of Arts degree must earn 30 units of graduate credit, not more than 6 of which may be awarded for an optional thesis. Four specific courses are required: The Summer Field Camp, Advanced Physical Geography, Advanced Cultural Geography, and History of Geographic Thought. The Master of Education degree with a major in geography requires at least 32 units in Geography and in Education, but no thesis.

The Ph.D. requires completion of the M.A. requirements, specialization in one topical and one regional area, two foreign languages or one foreign language plus acceptable quantitative skills, and an original dissertation.

Fields of special emphasis include cultural-historical geography, economic geography and regional development, some aspects of physical geography, urban geography, Anglo-America, Arid Lands, and Latin America.

The department also contains a semi-autonomous M.S. program in Urban Planning with a separate program chairman, planning faculty, and approximately 60 graduate students in residence.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system; Field Camp offered in summer only. GRE scores, Aptitude and Advanced, required for admission. Several assistantships with stipends beginning at $2800 (one-half time) and including remission of out-of-state tuition are available to qualified applicants. Applications for assistantships must be complete by February 15.

STAFF IN GEOGRAPHY:

D. Robert Altschul, Ph.D., Illinois, 1966, Associate Professor—rural settlement, physical, Africa

David E. Bradbury, Ph.D., UCLA, 1974, Assistant Professor—physical, plant geography, arid lands, Latin America

Lay J. Gibson, Ph.D., UCLA, 1968, Associate Professor—economic, urban, regional development

Melvin E. Hecht, Ph.D., Kansas, 1962, Professor—U.S. historical-cultural, the Southwest

David A. Mouat (part-time), Ph.D., Oregon State, 1974, Assistant Professor—remote sensing, geomorphology, plant ecology

Leland R. Pederson, Ph.D., UC, Berkeley, 1965, Professor—historical, cultural, Latin America

Richard W. Reeves, Ph.D., UCLA, 1970, Professor—geomorphology, arid lands, cartography

Thomas F. Saarinen, Ph.D., Chicago, 1966, Professor—perception of environment, resource management, urban

Andrew W. Wilson, Ph.D., Syracuse, 1955, Professor—urban, regional development, arid lands

Marshall A. Worden, Ph.D. candidate, Chicago, Assistant Professor—social and economic theory of urbanism

Robert E. Dickinson, Professor Emeritus

Dan Stanislawski, Professor Emeritus

University of Arkansas, Fayetteville

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 5

GRADUATE STUDENTS IN RESIDENCE: 6

NOT IN RESIDENCE: 5

CHAIRMAN: O. Orland Maxfield

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. O. Orland Maxfield, Chairman, Department of Geography, University of Arkansas, Fayetteville, Arkansas 72701
Telephone (501) 575-3159

PROGRAMS AND RESEARCH FACILITIES: The department offers a broad and flexible curriculum of instruction and research in both topical and regional geography with work available in allied fields. The University Library houses a fine collection of geography materials, including major foreign periodicals, and northwest Arkansas and adjacent areas offer many outstanding opportunities for field work. Each student's program reflects his or her background, interests, and needs. Narrow specialization is not emphasized at the Master's level, but the student is expected to broaden and deepen the understanding of geographical concepts and methodology. A thesis and 24 semester hours of course work are minimum requirements for the degree.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system. To enter Graduate School: an undergraduate degree with minimum of 2.5 grade point; to enter departmental program: minimum of 18 hours in geography and allied fields. Quarter- and half-time assistantships are available.

STAFF:

Thomas O. Graff, Ph.D., Kansas, 1973, Assistant Professor—recreation

O. *Orland Maxfield, Ph.D., Ohio State, 1963, Professor*—geographic thought, natural resources, urban, historical, landforms, Latin America

Earl M. Neel, Ph.D., Tennessee, 1963, Assistant Professor—cultural, economic, Monsoon Asia, Pacific

Thomas W. Scott, Ph.D., Illinois, 1957, Professor—environmental problems, transportation, Africa, Europe, Middle East

Two additional faculty to be appointed.

Ball State University

DEPARTMENT OF GEOGRAPHY AND GEOLOGY

DEGREES OFFERED: M.A., M.A.Ed., M.S.

GRANTED 7/1/76–6/30/77: 10

GRADUATE STUDENTS IN RESIDENCE: 15

NOT IN RESIDENCE: 13

CHAIRMAN: Edward E. Lyon

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Department of Geography-Geology, Ball State University, Muncie, Indiana 47306—for Department information. Catalog—Graduate information: Graduate School, Ball State University.
Telephone (317) 285-6275

PROGRAMS AND RESEARCH FACILITIES: Graduate work through the Masters degree in Geography, Geology and Earth Science (M.A. or M.A.Ed., major 24-45

quarter hours) (M.S. in Earth Science and Geology). A cognate (minor) is available in geography or earth science on the doctorate program in Education. The Department also participates in the graduate natural resources program. Special research and work facilities include cartography and aerial photo, earth science, physical geography and geology laboratories, a fully equipped weather station, map rooms, and a materials resource center. The University computer is available to departmental research.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Admission requirements comply with those of the University; forms obtainable from the Office of Admissions. Autumn, Winter, and Spring quarters, and two summer terms of five weeks each. Graduate assistantships $2800 per academic year available.

STAFF:

George F. Beatty, Ph.D., Illinois, 1958, Professor—land utilization, agricultural-rural Asia

Robert L. Carmin, Ph.D., Chicago, 1953, Professor and Dean of the College of Sciences and Humanities—frontier settlement, Latin America

Lowell I. Dillon, Ph.D., Indiana, 1960, Professor—economic, Australia, Indiana

Thomas P. Grimes, Ph.D., Kentucky, 1972, Assistant Professor—physical, industrial location, Asia

Stephen A. Justham, Ph.D., Illinois, 1974, Assistant Professor—meteorology-climatology, geomorphology

Henry E. Kane, Ph.D., UCLA, 1965, Professor—geomorphology, oceanography

Edward E. Lyon, Ph.D., Ohio State, 1972, Professor—education geography, physical, Anglo-America, geomorphology

Tom L. Martinson, Ph.D., Kansas, 1969, Professor—cultural, bibliography, Central America

R. William Orr, Ph.D., Indiana, 1967, Professor—invertebrate paleontology, stratigraphy

Dilip K. Pal, Ph.D., Illinois, 1962, Associate Professor—urban, regional-urban planning, political, Asia, U.S.S.R.

Raymond A. Peterson, Ph.D., Florida, 1967, Associate Professor—land utilization, conservation, Anglo-America

Harlan H. Roepke, Ph.D., Texas, 1970, Professor—field studies, sedimentology-mineralogy

Alan C. Samuelson, Ph.D., Pennsylvania State, 1972, Associate Professor—structural geology, geophysics

Meera Schoen, Ph.D., London, 1951, Assistant Professor—urban, cultural, U.S.S.R.

Gerald R. Showalter, Ph.D., Illinois, 1973, Associate Professor—thematic cartography, agricultural development

William H. Stevenson, M.A., North Dakota, 1947, Associate Professor—meteorology, Anglo-America, air-photo, physical

Michael E. Sullivan, Ph.D., Illinois, 1972, Associate Professor—industrial, Latin America

Boston University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: A.M., Ph.D.

GRANTED 7/1/76–6/30/77: 6 A.M.

GRADUATE STUDENTS IN RESIDENCE: 25

CHAIRMAN: Geoffrey Bannister

FOR CATALOG AND FURTHER INFORMATION WRITE TO: The Graduate Advisor, Department of Geography, Boston University, 48 Cummington Street, Boston, Massachusetts 02215
Telephone (617) 353-2525

PROGRAMS AND RESEARCH FACILITIES: The department has a strong area of specialization in urban and regional development with special emphasis on the northeastern United States. In urban and economic geography, research and teaching focus upon the application of regional development models, location theory, and urban systems models to regional policy problems. The physical geography program concentrates on applied climatology and environmental studies. The department also maintains teaching and research interests in human and population geography, energy studies, and political geography. A full range of courses is available in quantitative techniques, and in quantitative and theoretical cartography.

Boston University has an outstanding African Studies Center and Library, and an excellent program in the Center for Latin American Development Studies. The Geography department maintains close working relationships with the New England manpower center (housed at Boston University), the Energy Center, Human Environment Institute, and the urban and regional planning program. The department is actively involved with public and private sector policy institutes, especially the Council for Northeast Economic Action, and graduate students are encouraged, where relevant, to combine their academic program with policy research with one of these agencies. Students share also in the rich cultural and research resources of the Boston area.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Boston University is on the semester system. Prospective graduate students should write the Graduate Advisor for applications and instructions for submitting complete credentials. The Graduate Record Examination is requested of all applicants. Financial aid includes Teaching Fellowships of $3000 plus tuition, and Graduate Assistantships providing full tuition.

STAFF:

Geoffrey Bannister, Ph.D., Toronto, 1974, Chairman—economic, urban, location theory, regional policy

Robert B. Batchelder, Ph.D., Northwestern, 1951, Professor—climatology, physical oceanography

Alan Best, Ph.D., Michigan State, 1965, Associate Professor—political, population, Africa

Redmond Clark, Ph.D., Southern Illinois, 1977, Assistant Professor—urban climatology, climatic geomorphology, aerial photo interpretation

Thomas F. Glick, Ph.D., Harvard, 1968, Associate Professor—environmental history, historical geography, future environments

Russell Lee, Ph.D. (antic.), McMaster, 1977, Assistant Professor—urban and regional models, transportation, medical, regional policy

George K. Lewis, Ph.D., Harvard, 1956, Professor—urban, regional planning, New England

Robert C. Mayfield, Ph.D., Washington, 1961, Professor—cultural, economic development, South Asia

Judy M. Olson, Ph.D., Wisconsin, 1970, Associate Professor—quantitative and theoretical cartography, automatic pattern recognition, automated mapping

Jeffrey Osleeb, Ph.D., SUNY Buffalo, 1974, Associate Professor—economic, energy, quantitative methods, regional policy

One other position to be filled in the area of urban, economic, and regional policy.

Bowling Green State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A.T.

GRANTED 7/1/76–6/30/77: 14

GRADUATE STUDENTS IN RESIDENCE: 10

NOT IN RESIDENCE: 5

CHAIRMAN: Joseph G. Spinelli

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Alvar W. Carlson, Graduate Advisor, Department of Geography, Bowling Green State University, Bowling Green, Ohio 43403

PROGRAMS AND RESEARCH FACILITIES: The Department is well equipped with a cartography laboratory which includes a NuArc Camera, Map-O-Graph, Bruning Copier, darkroom facilities, and a Varitype machine. The Department is also a depository for the Army Map Service, U.S. Geological Survey, and the National Ocean Survey-Great Lakes Series. Students and faculty have access to the IBM 360-75 computer. Considerable weather equipment enables students to specialize in climatology. The main emphases in our graduate work are Urban-Economic, Climatology, Cartography, and Cultural-Population. An internship program provides practical experience.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Quarter System. Maximum stipend of $3241 for graduate assistantships with tuition paid.

STAFF:

Thomas Anderson, Ph.D., Nebraska, 1966, Associate Professor—cultural, field methods, land use

James Baldwin, A.B.D., UC, Davis, Instructor—cultural, plants and animals, medical

Joseph Buford, Ph.D., UCLA, 1962, Professor—political, Europe

Alvar Carlson, Ph.D., Minnesota, 1970, Associate Professor—rural development, recreation, ethnicity

Stephen Chang, Ph.D., UCLA, 1971, Associate Professor—cultural, conservation, resources/regional development

Paul Crawford, Ph.D., Kansas, 1969, Professor—cartography, geomorphology, soils

Ralph Frank, Ph.D., Northwestern, 1952, Professor—economic, Asia, education

Glen Frey, Ph.D., Wisconsin—Milwaukee, 1972, Assistant Professor—climatology, meteorology, hydrology

John Hiltner, Ph.D., Northwestern, 1958, Professor—urban, Middle East, gerontology

John Kunstmann, Ph.D., Northwestern, 1964, Associate Professor—physical, air photo, remote sensing

William Peterman, Ph.D., Denver, 1971, Assistant Professor—environmental problems, meteorology, urban

Mohan Shrestha, Ph.D., Iowa, 1969, Associate Professor—economic, quantitative analysis, computer mapping

Bruce Smith, Ph.D., Illinois, 1970, Associate Professor—industrial location, gerontology, regional development

Joseph Spinelli, Ph.D., Florida, 1973, Assistant Professor—population, Latin America

California State University, Chico

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 4

GRADUATE STUDENTS IN RESIDENCE: 14

NOT IN RESIDENCE: 30

CHAIRMAN: Jerry R. Williams

FOR FURTHER INFORMATION WRITE TO: Dr. Louis J. Mihalyi, Graduate Coordinator, Department of Geography, California State University, Chico, Chico, California 95929
Telephone (916) 895-5285

PROGRAMS AND RESEARCH FACILITIES: The department's interests and program are well rounded but include strength in physical geography and rural planning. The department participates in African, Asian, American and Latin American Studies programs. Geography occupies the 5th floor of a new computer-equipped Social Sciences building with good facilities for cartography and aerial photography.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: California State University, Chico operates two semesters and summer sessions. In order to be admitted to the graduate program, the student must: (1) have a grade average of B (3.0) in his undergraduate work; (2) attain acceptable scores on the Graduate Record Examination; and (3) have three letters of recommendation submitted directly to the graduate coordinator. The program entails a minimum of 30 semester units, including a thesis. Required courses include Geographic Thought or Research Models, Quantitative Methods and Field Geography.

Graduate assistantships and regional internships frequently are available.

STAFF:

Mutwakil Amin, Ph.D., UCLA, 1968, Associate Professor—cultural, Middle East, Africa

Bruce E. Bechtol, Ph.D., Oregon, 1969, Professor—field methods, man-environment relationships, Latin America

William F. Collins, Ph.D., Cincinnati, 1974, Associate Professor—planning, quantitative methods, urban, air photo

Richard Haiman, Ph.D., UCLA, 1973, Associate Professor—biogeography, climate, human ecology, medical geography

Ladd L. Johnson, Ph.D., UCLA, 1970, Professor—Africa, political, population and settlement

Arthur E. Karinen, Ph.D., Maryland, 1959, Professor—cartography, California, Europe, population, U.S.S.R.

David W. Lantis, Ph.D., Ohio State, 1950, Professor—California, physical, Anglo-America, mountain, generalist

Gene E. Martin, Ph.D., Syracuse, 1955, Professor—field methods, air photo and remote sensing, Latin America

Ralph F. Meuter, Ph.D., Oklahoma, 1970, Associate Professor—economic, industrial development, location analysis

Louis J. Mihalyi, Ph.D., UCLA, 1969, Associate Professor—cultural, Africa, Europe, U.S.S.R.

Edward L. Myles, Ph.D., Michigan, 1973, Associate Professor—Australia, urban, environment and man, social science

Frank Seawall, Ph.D., Pennsylvania State, 1957, Professor—transportation, urban, Anglo-America

Margaret E. Trussell, Ph.D., Oregon, 1969, Professor—cultural, historical, agricultural

Jerry R. Williams, Ph.D., Florida, 1969, Associate Professor—cultural, Latin America, economic

California State University, Fresno

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 4

GRADUATE STUDENTS IN RESIDENCE: 17

NOT IN RESIDENCE: 7

CHAIRMAN: Chester F. Cole

FOR CATALOG AND FURTHER INFORMATION WRITE TO: E. Frank Koller, Graduate Advisor, Department of Geography, CSU, Fresno, Fresno, California 93740
Telephone (209) 487-2868

PROGRAMS AND RESEARCH FACILITIES: The Geography Department is authorized to grant the Master of Arts Degree with a major in Geography. The student may select one of two programs: Plan A (thesis) and Plan B (non-thesis). Plan A is designed to provide a thorough preparation leading to careers in research and scholarly work or in college or university teaching. Plan B is designed for those who will profit from a broader range of knowledge in geography rather than a more specific research interest. The objective of both plans is to provide: a thorough preparation in general geography; experience in conducting independent research; and an opportunity for limited specialization. The department requires a foreign language for Plan A only. Cartography, field geography and quantitative techniques are prerequisites to Plan A.

MASTER OF ARTS DEGREE IN GEOGRAPHY (THESIS PLAN)

1. Required courses: 12 units—Research and Writing (3); Geographic Thought (3); Thesis (6)
2. Select from the following seminars, including one physical, one human systematic, and one regional seminar, 9 units appropriate to program objective—Seminars: economic; cultural; physical; urban; selected regions.
3. Electives in geography: 3-6 units.
4. Electives outside of geography: 3-6 units.
5. Total required: 30 units.

MASTER OF ARTS DEGREE IN GEOGRAPHY (NON-THESIS PLAN)

1. Required courses: 6 units—Research and Writing (3); Geographic Thought (3).
2. Select 12 units from the following seminars including one physical, one human systematic, and one regional seminar—Seminars: economic; cultural; physical; urban; selected regions.
3. Electives in geography: 6-9 units.
4. Electives outside of geography: 3-6 units.
5. Total required: 30 units.

In addition to the course requirements, applicants for the Master of Arts Degree must meet the entrance standards of the college and pass the department's qualifying examination. There will be a final written and oral examination for non-thesis plan students and an oral thesis defense for thesis plan students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: CSU, Fresno operates on the semester system (plus summer session). The general graduate school admission requirements are described in the CSU, Fresno *Graduate Bulletin* (which may be obtained free from the Graduate School Office). Various forms of financial aid may be available to graduate students including: graduate assistantships; student readerships; federal work-study programs; NDEA loans; and occasional part-time lectureships. The graduate assistantship application deadline is March 1.

STAFF:

Michael Biechler, Ph.D., Michigan State, 1970—agriculture, Latin America, population, natural resources
Chester F. Cole, Ph.D., Nebraska, 1951—political, historical
John A. Crosby, Ph.D., Washington, 1959—urban, map-air photo interpretation
Roger E. Ervin, Ph.D., Florida, 1954—Pacific world, soils
E. Frank Koller, Ph.D., Pennsylvania State, 1964—geographic education, Europe
James S. Kus, Ph.D., UCLA, 1972—cultural, Latin America
Robert E. Lee, Ph.D., UCLA, 1966—U.S.S.R., Africa, political
Charles G. Markham, Ph.D., UC, Berkeley, 1967—climatology, Latin America, quantitative techniques
Richard C. Montgomery, Ph.D., Nebraska, 1962—landforms, environmental studies
Donald L. Morgan, Ph.D., UC, Davis, 1972—micro-climatology, environmental studies
George N. Nasse, Ph.D., Michigan, 1960—field geography, Middle East
Stanley F. Norsworthy, Ph.D., UCLA, 1970—arid-lands, Canada, plant geography
Merrill M. Stuart, Ed.D., Teachers College, Columbia, 1968—economic, California
Jerry C. Towle, Ph.D., Oregon, 1974—cultural, environmental studies
Paul Vander Meer, Ph.D., Michigan, 1973—East Asia, cartography, land use

California State University, Fullerton

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76-6/30/77: 9

GRADUATE STUDENTS IN RESIDENCE: 25

NOT IN RESIDENCE: 4

CHAIR: Barbara Weightman

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Advisor, Department of Geography, California State University, Fullerton, California 92634
Telephone (714) 870-3161

PROGRAMS AND RESEARCH FACILITIES: The department offers a program designed primarily for students interested in educational, governmental, and commercial employment. Seminars and advanced courses include work in physical and human geography and frequently focus on themes related to environmental change and land use planning. Facilities in the computer center and the departmental cartographic laboratory make it possible to provide advanced work in photo-cartography, computer graphics, and quantitative analysis.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The current course of study requires about three semesters of full-time enrollment. Each student normally takes 9-12 hours of seminars, 6 hours of research, additional advanced courses, and must satisfy a requirement in advanced techniques, for a total of 30 hours. The prerequisite consists of 33 semester hours of geography, reflecting balanced training in physical, human, regional, and technical courses. Approximately three technical assistantships are available.

STAFF:

Arthur D. Earick, Ph.D., Michigan, 1959, Professor and Graduate Advisor—Anglo-America, historical, urban redevelopment, tourism

H. Peter Eilers, Ph.D., Oregon State, 1975, Associate Professor—biogeography, ecological systems, coastal

Wayne N. Engstrom, Ph.D., Wisconsin, 1971, Associate Professor—geomorphology

Glenn George, Ph.D., California, 1972, Associate Professor—economic, spatial diffusion, geographic methodology

Gerald P. Hannes, Ph.D., Illinois, 1972, Associate Professor—climatology

Ronald A. Helin, Ph.D., UCLA, 1961, Professor—Europe, U.S.S.R.

William J. Ketteringham, Ph.D., UCLA, 1972, Associate Professor—Latin America, field, land use

Tso-Hwa Lee, Ph.D., Southern Illinois, Carbondale, 1973, Associate Professor—cartography, quantitative methods, cartomation, location/allocation algorithms, Southeast Asia, China

Bill Puzo, Ph.D., UCLA, 1972, Associate Professor—Africa, political, arid lands

Gertrude M. Reith, Ph.D., Clark, 1963, Professor—California, environmental problems

Imre Sutton, Ph.D., UCLA, 1964, Professor—conservation, cultural ecology, land tenure, environmental law

Barbara A. Weightman, Ph.D., Washington, 1972, Associate Professor and Chair—East Asia, social, cultural, population

Robert A. Young, Ph.D., Wisconsin, 1975, Assistant Professor and Graduate Advisor—urban, urban planning, regional development

California State University, Hayward

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 7

GRADUATE STUDENTS IN RESIDENCE: 40

NOT IN RESIDENCE: 50

CHAIRMAN: John H. Vann

FOR CATALOG AND FURTHER INFORMATION WRITE TO: John Lier, Graduate Advisor, Department of Geography, California State University, Hayward, California 94542
Telephone (415) 881–3193 (Department Office)

PROGRAMS AND RESEARCH FACILITIES: Graduate study leads to the degree Master of Arts in Geography, with a choice from nine specialties: biogeography, cartography, cultural geography, growth of geographic thought, historical geography, physical geography, regional geography, regional planning, and urban geography. Seminars are focused on intensive, directed readings interspersed with discussions of the content, principles, methods and techniques of the selected topic or theme. The intent of the program is to develop a subject to its research frontiers, emphasizing an awareness of both theoretical and pragmatic problems and their significance for the discipline. Seminars are accompanied or followed by directed research yielding oral and written reports intended to motivate the student into recognition of problems and into guided investigation of a topic or theme. The program comprises 45 units, including 6 units of thesis or a special project. A graduate internship program is open to students with classified standing. Students must demonstrate proficiency in either a modern foreign language or in statistical methods as they apply to geography or in mathematics. Cartographic, laboratory, library, and computer facilities are available on campus. The research facilities of the University of California, Berkeley and Stanford University are nearby.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: At present the college operates on a four-quarter, year-round calendar. A student with an undergraduate degree in geography could complete the requirements for the M.A. in three to five quarters. Once admitted, the department may be able to arrange part-time employment as technical assistant.

STAFF:

Herbert M. Eder, Ph.D., UCLA, 1963, Professor—cultural, agricultural, Middle America, the American tropics

Donald G. Holtgrieve, Ph.D., Oregon, 1973, Associate Professor—geographic education, historical, environmental impact analysis

Robert A. Kennelly, Ph.D., Iowa, 1952, Professor and Vice-President, Administration, of the College

John Lier, Ph.D., UC, Berkeley, 1968, Associate Professor and Graduate Advisor—urban, climatology, population, Europe

Thomas H. Pagenhart, Ph.D., UC, Berkeley, 1969, Associate Professor—water and energy resources, conservation, resource management, Anglo- and Latin America

Vincent K. Shaudys, Ph.D., Ohio State, 1956, Professor—political, regional theory, North America, South Asia, Pakistan

Richard S. Thoman, Ph.D., Chicago, 1953, Professsor—regional planning and development, economic, North America, growth of geographic thought

William L. Thomas, Ph.D., Yale, 1955, Professor—cultural, geographic theory and philosophy, Southeast Asia, Philippines, East and Southeast Asia, Pacific, tourism

John H. Vann, Ph.D., UC, Berkeley, 1960, Professor and Chairman—physical, geomorphology, alluvial and coastal morphology, plant and animal domestication, Latin America, air photo and remote sensing

Robert E. Winter, Ph.D. candidate, Washington, Lecturer—cartography, map and air photo reading and interpretation

California State University, Long Beach

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 4

GRADUATE STUDENTS IN RESIDENCE: 34

CHAIRMAN: Frederick H. Scantling

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Gary L. Peters, Graduate Coordinator, Department of Geography, California State University, Long Beach, California 90840
Telephone (213) 498-4977

PROGRAMS AND RESEARCH FACILITIES: The Master of Arts Degree program consists of 30 semester units, primarily in Geography, including either a thesis or a comprehensive examination. Language or statistical competence is required when appropriate. Certificates in Urban Studies or Environmental Studies may be earned concurrently. There is courier service to the UCLA Research Library.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Two-semester system, plus summer sessions. Prerequisite to M.A. Degree program is bachelor's degree, or equivalent coursework, in Geography, with GPA of 3.0 (B) or alternative evidence of ability.

STAFF:

Burton L. Anderson (Ph.D., Washington), *Molly Debysingh* (Ph.D., Syracuse), *Sheldon D. Ericksen* (Ph.D., Chicago), *Edward Karabenick* (Ph.D., Michigan), *John C. Kimura* (Sc.D., Tokyo Toritsu), *Richard Outwater* (Ph.D., Minnesota), *Gary Peters* (Ph.D., Pennsylvania State), *Frederick Scantling* (Ph.D., UCLA), *Joel B. Splansky* (Ph.D., UCLA), *Rodney Steiner* (Ph.D., Washington), *Judith A. Tyner* (Ph.D., UCLA), *Jean D. Wheeler* (Ph.D., UCLA), *James N. Wilson* (Ed.D., Columbia).

California State University, Los Angeles

DEPARTMENT OF GEOGRAPHY AND URBAN STUDIES

DEGREES OFFERED: M.A. (Geography)

GRANTED 7/1/76–6/30/77: 8

GRADUATE STUDENTS IN RESIDENCE: 57

CHAIRMAN: William G. Byron

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Department of Geography and Urban Studies, California State University, Los Angeles, 5151 State University Drive, Los Angeles, California 90032
Telephone (213) 224–3822

PROGRAMS AND RESEARCH FACILITIES: The Master of Arts degree in Geography at California State University, Los Angeles, requires intensive directed study aimed at depth of understanding and intellectual attainment.

The program is designed to prepare students for teaching at all levels, government employment, and advanced preparation in the fields of Geography and Urban Studies.

The department offers some forty undergraduate courses and five graduate seminars to meet degree program objectives. The instructional program is enriched by special topic classes offered by distinguished foreign visiting professors and regular staff. The department also offers a full quarter of instruction and field experience at a station in Mexico, staffed with an interdisciplinary faculty.

The department recognizes the individuality of each student; hence there is considerable flexibility in the program. The following requirements, however, must be satisfied:

1. A Bachelor's degree in geography or its acceptable equivalent.
2. A minimum of 25 quarter units of graduate courses in Geography which must include at least 4 seminars one of which must be the Nature of Geography ..... Minimum 25 quarter units.
3. Electives in Upper Division or Graduate courses in geography ..... Minimum 12 quarter units.

4. Electives in Upper Division or Graduate courses in field related to geography ..... 0–8 quarter units.
   Minimum total 45 quarter units.
5. Graduate thesis or comprehensive examination.
6. Competency in a foreign language or statistics.
7. Completion of the program within 7 years.

The department is able to offer limited financial assistance to a few of its deserving graduate students. Inquiries should be directed to the Department Chairman.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates year-round on the quarter system. Students can enter the program at the beginning of any quarter. An appropriate baccalaureate degree from an accredited institution and a formal application to the Office of Admissions and Records is required for admission to the University. Students in need of financial assistance to meet educational expenses are invited to correspond with the University's Financial Aids Office.

STAFF:

Richard Arvidson, Ph.D., Johns Hopkins, 1970, Associate Professor—Africa, resources, political

Thomas Best, Ph.D., Northwestern, 1959, Associate Professor—geographic media, instructional technology, Anglo-America

William Byron, Ph.D., Syracuse, 1954, Professor—cartography, Middle America, cultural

Harry Coffin, Ph.D., UC, Berkeley, 1961, Professor—climatology, meteorology

Norman Gosenfeld, Ph.D., UCLA, 1973, Associate Professor—political, military, Europe

Sin-Fong Han, Ph.D., Michigan, 1971, Associate Professor—cultural, economic development, Southeast Asia

Vincent Mazzucchelli, Ph.D., UCLA, 1973, Associate Professor—cartography, California, arid lands

Midori Nishi, Ph.D., Washington, 1955, Professor—Asia, regional theory, cultural

Clement Padick, M.A., UCLA, 1957, Associate Professor—air photo and map interpretation, field methods, Soviet Union

David Radell, Ph.D., UC, Berkeley, 1969, Professor—urban, Middle America

John Rees, Ph.D., UCLA, 1971, Assistant Professor—biogeography, cultural, Middle America

William Ting, Ph.D., Glasgow, 1937, Professor—geomorphology, palynology, quantitative methods

California State University, Northridge

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 10

GRADUATE STUDENTS IN RESIDENCE: 54

NOT IN RESIDENCE: 0

CHAIRMAN: Ralph D. Vicero

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Office, California State University, Northridge, Northridge, California 91330
Telephone (213) 885-3532

PROGRAMS AND RESEARCH FACILITIES: Major programs: cartography, climatology, historical geography, urban-quantitative, geomorphology. Research facilities: Complete cartographic facilities to support drawing, production, and printing of maps (laboratories, cameras, dark room, press). Computerized climatology laboratory, Sanborn map library (depository for maps of cities west of the Mississippi River—145,000 plates). Research map library (200,000 flat maps, 75,000 air photographs). Quantitative laboratory and computer access.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system. Admission to program with an adequate geographic preparation and a GPA of 3.0 or better. Provisional admission with GPA of 2.5 and a GRE score of 950. All students must complete Geography 501 with grade of B or A. Some assistantships available.

STAFF:

James P. Allen, Ph.D., Syracuse, 1970, Professor—cultural, social
Warren R. Bland, Ph.D., Indiana, 1970, Associate Professor—historical, economic
William A. Bowen, Ph.D., UC, Berkeley, 1972, Associate Professor—historical, physical
Arnold Court, Ph.D., UC, Berkeley, 1956, Professor—climatology, quantitative
William Tim Dagodag, Ph.D., Oregon, 1972, Associate Professor—urban, Latin America
John F. Gaines, Ph.D., Nebraska, 1951, Professor—plant geography, California
Robert Gohstand, Ph.D., UC, Berkeley, 1973, Associate Professor—Soviet Union, cartography
David A. Henderson, Ph.D., UCLA, 1964, Professor—Mexico, historical
Robert Hoffpauir, Ph.D., Wisconsin, 1974, Assistant Professor—cultural, South Asia
David Hornbeck, J., Ph.D., Nebraska, 1974, Associate Professor—historical, Southwest U.S.
Robert B. Howard, Ph.D., UCLA, 1974, Assistant Professor—geomorphology

Philip S. Kane, Ph.D., UC, Berkeley, 1975, Assistant Professor—geomorphology
Robert B. Lamb, Ph.D., UCLA, 1959, Professor—agricultural, climatology
Gordon Rowland Lewthwaite, Ph.D., Wisconsin, 1956, Professor—historical, Southwest Pacific
Gong-Yuh Lin, Ph.D., Hawaii, 1974, Associate Professor—meteorology, cartography
C. Gary Lobb, Ph.D., UC, Berkeley, 1970, Associate Professor—cultural, tropical ecology
Elliot G. McIntire, Ph.D., Oregon, 1968, Associate Professor—cultural, Southwest U.S.
J. Jay Pederson, Ph.D., UCLA, 1974, Assistant Professor—geomorphology, medical
Eugene J. Turner, Ph.D., Washington, 1977, Assistant Professor—cartography
Ralph D. Vicero, Ph.D., Wisconsin, 1968, Professor—historical Anglo-America
I-shou Wang, Ph.D., Minnesota, 1971, Professor—population, East Asia

University of California, Berkeley

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 11 M.A., 9 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 45

NOT IN RESIDENCE: 35

CHAIRMAN: James J. Parsons

FOR CATALOG send $2.50 to the Office of the Registrar, 120 Sproul Hall, University of California, Berkeley, California 94720. For admissions application and departmental information write to: Professor Allan Pred, Graduate Adviser, Department of Geography, 501 Earth Sciences Building, Berkeley, California 94720 Telephone (415) 642-3903

PROGRAMS AND RESEARCH FACILITIES: A 4.2-million volume library with exceptional special collections in the Bancroft (Western Americana, Latin America) and East Asiatic libraries; a distinguished faculty of nearly 100 other departments and schools; a large computer center; and easy access to the matchless physical and cultural diversity of the San Francisco Bay Area and Northern California.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The department offers graduate training in cultural, economic, urban, social, regional, and physical geography, and places emphasis on the interrelationships among these specialties and related approaches in other disciplines. Cultural geography includes processes in the formation of rural landscapes, economic development, the culture of cities, and the history of ideas. In urban geography, stress is placed on morphogenesis of American and European cities and on the

role of social forces in the shaping of cities. Work is offered in the development of urban and long-distance transportation. Here, and in economic geography, relevant instruction in quantitative methods is provided, and themes emphasized include the "urban field," location theory, city-system and regional development, and innovation diffusion. Emphasis may be placed on ecology and natural resources, including vegetational change and domestication with particular attention to the Western U.S., the arid lands, and the humid tropics. In physical geography, the department offers specialized training in structural and climatic geomorphology, atmospheric processes, paleoclimatology, and biogeography. Many combinations thus are possible. All of the systematic fields noted above readily lend themselves to regional specialization. (See staff listing.)

The department offers financial support in the form of a limited number of teaching assistantships, as well as the Holway Fellowship and Society of Women Geographers Fellowship. Outstanding applicants are also considered for University Fellowships.

FULL-TIME STAFF:

Roger Byrne, Ph.D., Wisconsin, 1972, Assistant Professor—biogeography

Orman Granger, Ph.D., Toronto, 1974, Assistant Professor—climatology

David J. M. Hooson, Ph.D., London, 1955, Professor—Soviet Union, history of geographic thought, Australasia

Bernard Q. Nietschmann, Ph.D., 1970, Wisconsin, Associate Professor—cultural, cultural ecology, subsistence economies

Theodore M. Oberlander, Ph.D., Syracuse, 1963, Associate Professor—geomorphology, with particular interest in arid regions and climatic morphogenesis, cartographic representation, Southwest Asia

James J. Parsons, Ph.D., UC, Berkeley, 1948, Professor—Latin America (especially Central America and the Andean countries) and California, tropical biogeography, descriptive economic geography

Allan R. Pred, Ph.D., Chicago, 1962, Professor—time geography, the growth and development of systems of cities in advanced economies, information circulation, innovation diffusion

Robert R. Reed, Ph.D., UC, Berkeley, 1971, Assistant Professor—cultural, historical, urbanism in the non-western world, Southeast Asia

Hilgard O'Reilly Sternberg, Ph.D., Louisiana State, 1956, Professor—Portuguese America (Brazil) with emphasis on settlement and development in problem areas (Amazonia, the Northeast), humid tropics and the arid zones, the zonal approach to disjunct regions

James E. Vance, Jr., Ph.D., Clark, 1952, Professor—morphogenesis of U.S. and European cities, social structuring of cities, historical transportation geography, Canada

Richard A. Walker, Ph.D., 1976, Johns Hopkins, Assistant Professor—resources, environmental problems, land-use legislation

Additional staff to be appointed.

PART-TIME STAFF:

Douglas R. Powell, Ph.D. candidate, UC Berkeley, Lecturer—California, field methods, physical

EMERITUS FACULTY:
Clarence J. Glacken
John E. Kesseli
John Leighly
Daniel B. Luten

University of California, Davis

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 3 M.A., 0 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 13 M.A. 4 Ph.D.
NOT IN RESIDENCE: 9 M.A. 11 Ph.D.

CHAIRMAN: Kenneth Thompson

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Adviser, Department of Geography, University of California, Davis, California 95616
Telephone (916) 752-0790

PROGRAMS AND RESEARCH FACILITIES: Fields of graduate study include physical geography (especially geomorphology and climatology), cultural geography, economic geography (especially agricultural geography), and urban geography. Regional coverage includes Anglo-America (particularly California and the West), Latin America, Europe, Soviet Union, Africa, the Near East, and South Asia. Familiarity with the methods and contributions of allied disciplines to these specialized areas is also stressed.

The M.A. degree program calls for completion of 30 quarter units of course work and a thesis, or 36 units and a comprehensive examination. For the doctoral program, the candidate is expected to qualify as a general geographer and as a specialist in two distinct fields, one topical and one regional. Also required of the doctoral candidate is a reading knowledge of two foreign languages, or a combination of one language and a program of statistics and mathematics.

Besides having the normal cartographic and map facilities, the department enjoys access to a wealth of library materials, on the campus, in the State Library and other state offices in adjacent Sacramento, and in Berkeley and other communities of the San Francisco Bay metropolitan area. The location of the Davis campus near two major urban centers, its proximity to the Sierra Nevada and Coast Ranges, and its position in the heart of the Central Valley also provide unusual field opportunities.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Apply: Graduate Adviser, Department of Geography, University of California, Davis, California 95616. The graduate student may apply for departmental teaching assistantships and, to the Graduate Division, for fellowships and scholarships. UC-

Davis operates on the quarter system, although two six-week summer sessions instead of a summer quarter are offered at present.

STAFF:

Conrad J. Bahre, Ph.D., UC, Riverside, 1974, Assistant Professor—cultural, plant geography, Latin America

Dennis J. Dingemans, Ph.D., UC, Berkeley, 1975, Assistant Professor—urban, social, economic, Soviet Union

Howard F. Gregor, Ph.D., UCLA, 1950, Professor—economic, agriculture, Anglo-America, California

Louis E. Grivetti, Ph.D., UC, Davis, 1976, Assistant Professor—cultural, food and nutrition, Near East

David M. Helgren, Ph.D., Chicago, 1975, Assistant Professor—geomorphology, Quaternary studies, Africa

Stephen C. Jett, Ph.D., Johns Hopkins, 1964, Associate Professor—cultural, conservation, southwestern United States

Marlyn L. Shelton, Ph.D., Southern Illinois, 1973, Assistant Professor—climatology, water resources, physical systems

Frederick J. Simoons, Ph.D., UC, Berkeley, 1956, Professor—cultural, Africa, South Asia

Kenneth Thompson, Ph.D., Northwestern, 1955, Professor and Chairman—historical, political, California, Western Europe

PROFESSOR EMERITUS:

Herbert B. Schultz

University of California, Los Angeles

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 13 M.A., 10 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**24 M.A.**	**34 Ph.D.**
NOT IN RESIDENCE:	**1 M.A.**	**12 Ph.D.**

CHAIRMAN: Antony R. Orme

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Advisor, Department of Geography, University of California, Los Angeles, California 90024 Telephone (213) 825-4655 or 825-1071

PROGRAMS AND RESEARCH FACILITIES: The large staff of the Department covers major research areas in geography. The fields of geomorphology, climatology, biogeography, ecosystem analysis and conservation, cultural geography, and urban geography receive special emphasis. Contributing strength to the departmental offerings are many distinguished departments in cognate disci-

plines in which students are encouraged to do part of their work, and area studies programs embracing most parts of the world.

Laboratories are maintained for work in geomorphology, climatology, biogeography, cartography, remote sensing, and quantitative methods. The Campus Computing Network's IBM 91 has terminals convenient to the Department.

A thesis is a part of the M.A. program for continuing students. Emphasis is placed on the Ph.D. degree. At least one research tool is required for graduate study, subject to approval by the graduate student's committee.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: UCLA operates on a quarter system; new students may normally enter only in the Fall. Students are selected for admission to the graduate program on the basis of a completed B.A. in Geography or an allied field, a high grade point average, the GRE Aptitude Test, and three letters of recommendation. The M.A. is a prerequisite to the Ph.D. degree. University fellowships and teaching assistantships are available on a competitive basis. Deadlines for applications: December 15 for fellowships and assistantships; February 15 for normal graduate admission in following Fall Quarter.

STAFF:

Charles F. Bennett, Ph.D., UCLA, 1959, Professor—biogeography (especially human influences on ecosystems), Latin America, humid tropics, conservation, Iberia

C. Rainer Berger, Ph.D., Illinois, 1960, Professor—scientific dating methods in environmental sciences and archeology, physical geography, geophysics

Henry J. Bruman, Ph.D., UC, Berkeley, 1940, Professor—historical geography of Latin America, culture history of tropical agriculture, agricultural colonization in Brazil, limits of land settlement

John R. Clark, Ph.D., Michigan, 1974, Assistant Professor—social and cultural, population, cognitive mapping, computer cartography, Middle East

William A. V. Clark, Ph.D., Illinois, 1964, Professor—urban, quantitative analysis

Gary S. Dunbar, Ph.D., Louisiana State, 1956, Professor—history of geography, history of travel and discovery, historical, cultural

J. Nicholas Entrikin, Ph.D., Wisconsin-Madison, 1975, Assistant Professor—urban, economic, geographic thought

Gerry A. Hale, Ph.D., UCLA, 1966, Associate Professor—sociocultural geography, especially capitalism, inequality and hegemony in the modern world, Northeast Africa, Middle East

James O. Huff, Jr., Ph.D., Northwestern, 1973, Assistant Professor—economic, population, quantitative methods

Huey Louis Kostanick, Ph.D., Clark, 1948, Professor—political, Europe and Soviet Union, special interests: world problem areas and demographic migrations and changes in Eastern Europe and the Soviet Union

W. C. Krumbein, Ph.D., Chicago, 1932, Visting Professor—quantitative geomorphology, scientific methodology

Richard F. Logan, Ph.D., Harvard, 1949, Professor—geography of arid lands, field techniques, geography in the elementary school curriculum, California, Southern Africa

Tom L. McKnight, Ph.D., Wisconsin, 1955, Professor—Anglo-America, Australia and the Southwest Pacific, cultural zoogeography, conservation

Howard J. Nelson, Ph.D., Chicago, 1949, Professor—metropolitan Los Angeles, urban

Antony R. Orme, Ph.D., Birmingham, 1961, Professor and Chairman—geomorphology, environmental systems and planning, Quaternary studies, western North America, Southern Africa, Ireland

Christopher L. Salter, Ph.D., UC, Berkeley, 1970, Associate Professor—cultural geography with a regional focus on East Asia, Chinese historical geography, landscape in marginal regions undergoing rapid change

Jonathan D. Sauer, Ph.D., Missouri Botanical Garden and Washington University, St. Louis, 1950, Professor—plant geography, plant migration, historical geography of crops and weeds, tropical coastal and island vegetation

Werner H. Terjung, Ph.D., UCLA, 1966, Associate Professor—climatology, especially exchanges of energy, mass and momentum, and process-response systems in physical geography

Benjamin E. Thomas, Ph.D., Harvard, 1947, Professor—Africa (especially ecological, cultural, and historical factors in urban growth and economic development), history of geographic thought

Norman J. W. Thrower, Ph.D., Wisconsin, 1958, Professor—history of cartography, cartography (especially thematic mapping), remote sensing (especially land use mapping from hyper-altitude imagery), Western Europe

Stanley W. Trimble, Ph.D., Georgia, 1973, Assistant Professor—conservation, hydrology, fluvial geomorphology, research techniques

Hartmut Walter, Ph.D., Bonn, 1967, Associate Professor—zoogeography, evolutionary ecology, Mediterranean-type ecosystems, East Africa

Walter E. Westman, Ph.D., Cornell, 1971, Assistant Professor—plant ecology, nutrient cycling, environmental impact analysis, water quality management, statistical methods, Australia, California

University of California, Riverside

DEPARTMENT OF EARTH SCIENCES

DEGREES OFFERED: M.A., M.S., Ph.D.

GRANTED 7/1/76–6/30/77: 3 M.A., 5 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 20

CHAIRMAN: Lewis Cohen

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Leonard W. Bowden, Department of Earth Sciences, UCR, Riverside, California 92521
Telephone (714) 787-5513 or 3434

The Department of Earth Sciences offers both undergraduate and graduate degrees in geography, geology, and geophysics. The following material describes the program in geography.

PROGRAMS AND RESEARCH FACILITIES: Both the M.A. and M.S. degrees are offered. The M.A. is for students interested in teaching or in pursuing a further degree. It requires satisfactory completion of 36 quarter units of course work and a comprehensive examination. The M.S. is for students interested in applied geography. Its requirements include a thesis.

Candidates for the Ph.D. degree are expected to show basic competence in both physical and cultural geography, and the history and methodology of the discipline. Research problems in Latin America, arid lands, and climatology are favored by the location of the campus as well as the interests of the staff. Recently emphasis has been placed on geographic applications of remotely sensed imagery and automated cartography, supported by a large and diversified collection of images gathered from aircraft and spacecraft.

A well-equipped cartographic laboratory is present in Departmental quarters, as well as desk and shelf space for all graduate students. The University Library contains a map library which is a depository of the Army Map Service, and subscribes to several hundred periodicals in geography and supporting fields. The complex regional character of southern California offers many field situations of interest to students of cultural geography as well as others of a physical nature.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University of California is on a quarter calendar, although a summer session rather than summer quarter is offered at present. Admission based on previous course work, experience and references. Positions are available to graduate students as Teaching or Research Assistants. Fellowships are available to especially well-qualified applicants.

GEOGRAPHY STAFF:

Homer Aschmann, Ph.D., UC, Berkeley, 1954, Professor—cultural, Latin America, arid lands

Harry Bailey, Ph.D., UCLA, 1950, Professor—climatology, forest regions, arid lands

Leonard Bowden, Ph.D., Clark, 1964, Associate Professor—remote sensing, urban, arid lands

Carl Hansen, Ph.D., Wisconsin, 1966, Associate Professor—geomorphology, Africa, arid lands

Claude Johnson, M.S., UC, Riverside, 1968, Lecturer—remote sensing, automated cartography, agricultural geography

William J. Lloyd, Ph.D., UCLA, 1977, Lecturer—urban, cultural, landscape appreciation

David A. Nichols, M.A., UC, Riverside, 1974, Lecturer—quantitative methods, automated cartography

Robert Pease, Ph.D., UCLA, 1964, Professor—physical, California, cartography, urban climatology

University of California, Santa Barbara

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 0

GRADUATE STUDENTS IN RESIDENCE: 18

NOT IN RESIDENCE: 0

CHAIRMAN: David S. Simonett

FOR CATALOG AND FURTHER INFORMATION WRITE TO: David S. Simonett, Department of Geography, University of California, Santa Barbara, California 93106
Telephone (805) 961-2344 or 3139

PROGRAMS AND RESEARCH FACILITIES: The department offers specialized graduate training in urban and economic geography, location theory, cartography, soils geography, geomorphology, hydrology, agricultural geography, and biogeography. In all these fields the program places particular emphasis on the acquisition of skills, especially those of remote sensing and digital image processing of remotely sensed data, computer application in geography, computer cartography, and multivariate data processing.

Research facilities include a remote sensing laboratory which contains specialized equipment, a soils laboratory, and a well-equipped cartography laboratory. The campus library with over a million volumes maintains a map library with close to 170,000 sheets of maps and 118,000 items of imagery. The campus computer center houses an IBM Model 75 and a PDP 11/45 which provides interactive Basic. The campus location provides easy access to a wide diversity of environments including the Pacific Ocean marine environment, the agricultural environment of the Central Valley, and the Los Angeles metropolitan region.

The Master's Program offers two plans: 1) 30 quarter units of course work and a thesis; or 2) 36 quarter units of course work and a comprehensive examination. Coursework outside the department is actively encouraged where it leads to a stronger program and such courses may account for up to one third of the credits necessary for completion of the degree.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: UCSB operates on the quarter system and incoming students may enter at the beginning of any quarter. Students applying for entrance to the program should have a demonstrated capability in Geography or other appropriate fields, have acquired a high grade point average, and should submit both their verbal and quantitative GRE scores upon formal application. The department has a number of teaching

assistantships and research fellowships available and students may also apply for University fellowships.

STAFF:

Christopher Clayton, Ph.D., Clark, 1974, Assistant Professor—urban, economic, quantitative

Jeffrey C. Dozier, Ph.D., Michigan, 1974, Assistant Professor—hydrology, geomorphology, quantitative

John E. Estes, Ph.D., UCLA, 1968, Associate Professor—remote sensing, agricultural, field methods

Reginald G. Golledge, Ph.D., Iowa, 1966, Professor—urban, behavioral

David S. Simonett, Ph.D., Sydney, 1954, Professor and Chairman—remote sensing, soils, agricultural

Terence R. Smith, Ph.D., Johns Hopkins, 1971, Assistant Professor—economic, urban, quantitative

Alan H. Strahler, Ph.D., Johns Hopkins, 1969, Assistant Professor—biogeography, physical, quantitative

Waldo R. Tobler, Ph.D., Washington, 1961, Professor—cartography, location theory

Central Michigan University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 2

GRADUATE STUDENTS IN RESIDENCE: 6

NOT IN RESIDENCE: 7

CHAIRMAN: Wayne E. Kiefer

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Wayne E. Kiefer, Chairman, Department of Geography, Central Michigan University, Mt. Pleasant, Michigan 48859
Telephone (517) 774-3616

PROGRAMS AND RESEARCH FACILITIES: The Geography program at Central Michigan University leads to a Master of Arts degree. The program is research and technique oriented with an emphasis upon skills for land use analysis. Cartographic and statistical skills and geographic applications of remote sensing are an important part of the program. The university computer (Univac 1106) is readily accessible for cartographic and statistical analysis. The department has the necessary equipment for advanced air photo interpretation, i.e., zoom stereo-

microscope and zoom transferscope. A Hasselblad camera system is also available. An extensive topographic map collection is held in the department and the University library. The library holdings in journals and bound volumes are generally adequate.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:
Admission Requirements: Minimum requirements for admission are: A) ten hours of geography including basic cartography; B) elementary statistics; C) a grade point average of 'B' in undergraduate major field. Students not meeting the minimum requirements may be admitted conditionally but will be required to make up the deficiencies.

Academic Plan: Thirty semester hours required for the M.A. degree including: A) Thesis (6 hrs.); B) Three required courses: Problem Selection/Presentation (3 hrs.), Land Use and Geographic Information (3 hrs.), and Regional Analysis (3 hrs.).

Financial Assistance: A limited number of assistantships and fellowships are available. For assistantships, write to Geography Department; for fellowships, write to the Graduate School, C.M.U., Mt. Pleasant, MI 48859.

STAFF:

Robert H. Aron, Ph.D., Oregon State, 1974, Assistant Professor—meteorology, biometeorology, microclimatology, quantitative techniques

Roger L. Henrie, Ph.D., Utah, 1976, Assistant Professor—land use, recreation, environmental perception

Wayne E. Kiefer, Ph.D., Indiana, 1967, Professor—physical, settlement, United States

Robert P. Marple, Ph.D., Nebraska, 1958, Professor—historical, Soviet Union

Robert S. Yuill, Ph.D., Michigan, 1969, Associate Professor—theoretical and quantitative, urban

Chicago State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 12

GRADUATE STUDENTS IN RESIDENCE: 5

NOT IN RESIDENCE: 35

CHAIRMAN: Irving Cutler

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Vernon W. Brockmann, Chicago State University, Ninety-Fifth Street at King Drive, Chicago, Illinois 60628
Telephone (312) 995-2188

PROGRAMS AND RESEARCH FACILITIES: The flexible M.A. program in geography is designed for students interested in teaching, government, private employment, or further research. Half of the necessary 30 semester hours constitutes a required core program. The other half (5 courses) consists of electives selected from the present offerings of over 30 graduate courses in geography. An M.A. in geography is also offered with a concentration in urban geographic studies. There are no language requirements. Two seminar papers are required in lieu of a thesis and a final comprehensive examination is given before graduation. Work can be pursued either in the day or evening programs or in both.

The library and laboratory facilities are enhanced by the vast resources of the Chicago Metropolitan Area, which also serves as a source of extensive and varied urban field work opportunities. In 1972 the university occupied a completely new $100,000,000 campus containing modern departmental classrooms, laboratories, reading room, and map library.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Admission requirements: (1) a Bachelor's degree with a grade average of B or better although promising students may be admitted conditionally with a slightly lower average and (2) fifteen hours of undergraduate work in geography, although conditional admission is sometimes possible with fewer hours. The school is on the trimester system and has an extensive system of scholarships, assistantships, and loan and work-study programs.

STAFF:

G. Munir Ahmed, Ph.D., Chicago, 1956, Professor—economic, Asia and Middle East

Frederick Blum, M.A., Chicago, 1961, Assistant Professor—urban, planning, historical, cultural, Africa

Vernon W. Brockmann, Ph.D., Northwestern, 1951, Professor—climatology, conservation, energy

Irving Cutler, Ph.D., Northwestern, 1964, Professor—transportation, industrial, urban, Anglo-America

Ross Mullner, M.A., M.P.H., Illinois, 1975, Assistant Professor—medical, cartography, measurement, computer

Herbert L. Rau, Jr., Ph.D., Northwestern, 1958, Professor—Latin America, regional analysis, physical

Irvin Roth, Ph.D., Syracuse, 1968, Associate Professor—economic, industrial, planning, teaching of geography

University of Chicago

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 4 M.A., 6 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**5 Masters**	**6 Ph.D.**
NOT IN RESIDENCE:	**4 Masters**	**29 Ph.D.**

CHAIRMAN: William D. Pattison

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Secretary, Department of Geography, University of Chicago, 5828 South University Avenue, Chicago, Illinois 60637
Telephone (312) 753–3921

PROGRAMS AND RESEARCH FACILITIES: The program of graduate study at the University of Chicago begins with a special orientation course which meets during the autumn quarter and includes contributions by all members of the staff. In addition to this special course, candidates entering with a bachelor's degree are expected to take a minimum of 8 other basic courses in consultation with the faculty. After completion of these requirements, attention is directed to the development of research capability at the doctoral level in a particular field. Fields of particular interest at the present time include: urban geography, economic geography, geomorphology, environmental geomorphology, Pleistocene ecology, cultural and historical geography, political geography, and specialized study of one or more of these topics in selected regions. Specialization in economic or urban geography normally requires a year of formal work in statistics. Students specializing in cultural geography or political geography are expected to undertake studies in anthropology or political science and international relations. Each of the regional specializations necessitates study of the relevant cultures and languages.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University of Chicago is on the quarter system. Since the special program for incoming graduate students takes place in the autumn, new graduate students are advised to initiate their work in that quarter.

Applications for admission should be made to the Office of Admissions and Aid, University of Chicago, 5801 Ellis Avenue, Chicago, Illinois 60637, on forms obtained from that office. Although applications for admission can be considered at any time, students seeking financial aid should ordinarily file an application for admission and aid before January 15 of the year in which they hope to begin graduate work. Students having questions about opportunities for studies related to their special interests are invited to write to the chairman.

Scholarship and fellowship aid is available on a competitive basis for part or all of tuition ($3930 a year). Students receiving aid are expected to devote full time to

their academic programs. The Department has no teaching assistantships, although employment as research assistant on special projects is possible for qualified students.

STAFF:

Karl W. Butzer, D.Sc., Bonn, 1957, Professor, Geography and Anthropology—prehistoric man-land interactions, geomorphology

Michael P. Conzen, Ph.D., Wisconsin, 1972, Associate Professor—historical, urban, North America

Norton S. Ginsburg, Ph.D., Chicago, 1949, Professor—political, economic development, urban problems, East and Southeast Asia

Stephen M. Golant, Ph.D., Washington, 1972, Assistant Professor—social and behavioral

Martin J. Haigh, Ph.D., Birmingham, 1976, Assistant Professor—environmental geomorphology, ecosystems

Chauncy D. Harris, Ph.D., Chicago, 1940, Samuel N. Harper Professor—economic, urban, Soviet Union

Donald W. Jones, Ph.D., Chicago, 1974, Assistant Professor—economic, economic development

Marvin W. Mikesell, Ph.D., UC, Berkeley, 1959, Professor—cultural, historical, Mediterranean region

William D. Pattison, Ph.D., Chicago, 1957, Associate Professor—history of geography, geography in education

Rutherford H. Platt, Ph.D., Chicago, 1971, Lecturer—legal aspects of land use planning

Paul Wheatley, Ph.D., Litt.D., London, 1958, Irving B. Harris Professor, Geography and Social Thought—comparative urbanism

David Woodward, Ph.D., Wisconsin, 1970, Lecturer—cartographic techniques, history of cartography

ASSOCIATED STAFF:

Gerson M. Rosenthal, Jr., Ph.D. (Zoology), UC, Berkeley, 1954, Associate Professor, Biology (the College)—ecological systems

University of Cincinnati

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 8 M.A., 5 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**9 M.A.**	**6 Ph.D.**
NOT IN RESIDENCE:	**6 M.A.**	**10 Ph.D.**

HEAD: K. Bruce Ryan

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Director of Graduate Studies in Geography, Department of Geography, University of Cincinnati, Cincinnati, Ohio 45221
Telephone (513) 475-5951

PROGRAMS AND RESEARCH FACILITIES: At the graduate level, the Department of Geography is primarily concerned with the training of students to evaluate and execute research. Geographic research is conceived as the analysis of man's spatial patterns. The emphasis is on the identification, location, and analysis of spatial problems with the ultimate goal the development of geographic theory.

In its graduate program, the Department specializes in urban, economic and historical geography. This cluster of specializations is based on the research interests of the staff, as reflected in their published research and in their current research projects.

The Department offers work toward the Master of Arts, the joint Master of Arts and Master of Community Planning, and the Doctor of Philosophy degrees.

Major research assets of the Department include the Archival Library of the Association of American Geographers, the departmental library, the University Computer Services, the map collection and the cartography laboratory, and the Cincinnati Public Library and the Cincinnati Historical Society collections.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Quarter System. Application for admission to the Geography program of the Division of Graduate Studies, or for graduate aid, obtained by writing to the Department of Geography, University of Cincinnati, Cincinnati, Ohio 45221 for application form and a current Graduate School Bulletin. GRE scores are required.

Financial Aid includes Graduate Assistantships, Research Assistantships, Tuition Scholarships, and University Internships.

STAFF:

Kenneth E. Corey, Ph.D., Cincinnati, 1969, Professor—urban form, historical, field methods, Greater Cincinnati Region, United States

Robert B. McNee, Ph.D., Syracuse, 1953, Professor—theory of urban and economic geography, megalopolis, Western Europe

Wolf Roder, Ph.D., Chicago, 1965, Professor—resources and economic development, field methods, statistical methods, Africa

Kenneth Bruce Ryan, Ph.D., Australian National, 1966, Professor—rural settlement policy, Appalachia, Australia

Roger M. Selya, Ph.D., Minnesota, 1971, Assistant Professor—historic geography and economic development, East Asia, history and philosophy of geography, population

Robert B. South, Ph.D., Maryland, 1972, Assistant Professor—economic, Latin America

Howard A. Stafford, Ph.D., Iowa, 1960, Professor—economic, urban

Robert P. van Spyk, Ph.D., Oregon, 1975, Assistant Professor—urban, quantitative methods, cultural, remote sensing, Western Europe

Laurence G. Wolf, Ph.D., Syracuse, 1966, Associate Professor—cartography, cultural, population, urban

Georgia Zannaras, Ph.D., Ohio State, 1973, Assistant Professor—urban, behavioral, research methods, social/population

Clark University

GRADUATE SCHOOL OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 6 M.A., 8 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 47

NOT IN RESIDENCE: 23

DIRECTOR: Saul B. Cohen

FOR FURTHER INFORMATION WRITE TO: Administrator, Graduate School of Geography, Clark University, Worcester, Massachusetts 01610
Telephone (617) 793-7337

PROGRAMS AND RESEARCH FACILITIES: Clark University remains an anachronism! In the era of the multiversity, a University that offers doctoral programs to 350 graduate students with a total student body under 2,000 is unique. Clark is human scale, a 35 acre campus in the midst of Worcester, where students and faculty can communicate and the opportunities for interdisciplinary work are enhanced. The program is broadly structured through joint faculty-student efforts. Features of the geography curriculum include principal emphasis upon doctoral programs; greater emphasis on selected concentrations; a common introductory core; options to the language requirement; and an A.B.-Ph.D. and A.B.-A.M. program.

Cross-disciplinary training is encouraged as evidenced by joint staff appointments with other departments. Major fields of concentration include: *Economic-Urban Geography; Historical Geography; Social Geography; Environmental and Natural Resource Management; Political Geography; Hydrology-Geomorphology; Geography and Its Teaching;* and *International Development.* Other areas of special competence are: Cultural Geography and Cartography.

Important innovations include: College teaching internships, fellowships at overseas universities for advanced graduate students; an organized field camp; and summer foreign field research for selected students. Special research opportunities are available in the school's sponsored research projects.

The journal *Economic Geography* is edited by a staff member, and the graduate students produce their own journal, *The Monadnock.* Each graduate student is provided with a personal work space and joint facilities for both research and

relaxation. The school occupies new quarters—a complex of laboratory, classroom, office, reading library and research space that provides unique opportunities for the development of geographical research and teaching.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system with 7-week modular term at end of spring semester. Modular options are available in some courses. Three year residency required for Ph.D. (2 1/2 years for those entering with an M.A.). *Admission Requirements:* interests coincident with those of department; evidence of competence to pursue graduate work at the Ph.D. level; G.R.E. scores required of U.S. and Canadian students; applicants from related fields will be considered; application deadline—February 15th. *Financial Aid* includes tuition fellowships, research and teaching assistantships.

FULL-TIME FACULTY:

Leonard Berry, Ph.D., Bristol, 1969, Professor of Geography, Co-Director International Development Program, Dean of the Graduate School, Coordinator of Research—applied geomorphology

Martyn J. Bowden, Ph.D., UC, Berkeley, 1968, Professor—historical-cultural, urban, environmental cognition

Anne Buttimer, Ph.D., Washington, 1965, Associate Professor—social, urban social space, philosophy of geography

Saul B. Cohen, Ph.D., Harvard, 1955, Professor, Adjunct Professor of Government & International Relations, Director of the Graduate School of Geography—political, learning, man's perception of environment, educational networks

Richard A. Howard, Ph.D., Massachuetts, 1970, Assistant Professor of Geography and Adjunct in Biology—biogeography, computer science, forest management

Douglas L. Johnson, Ph.D., Chicago, 1972, Associate Professor—cultural, landscape, economic development

Gerald J. Karaska, Ph.D., Pennsylvania State, 1962, Professor and Editor of Economic Geography—urban economic, quantitative methods

Roger E. Kasperson, Ph.D., Chicago, 1966, Professor of Geography and Government—urban-political, decision making, nuclear risk assessment

Robert W. Kates, Ph.D., Chicago, 1962, Professor of Geography and University Professor—environmental perception and management, resource development, risk assessment, early childhood education

Duane F. Knos, Ph.D., Iowa, 1956, Professor—geography and its teaching, urban, simulation as a learning process

William A. Koelsch, Ph.D., Chicago, 1966, Associate Professor of History and Geography, University Archivist—historical, history of geographic education

Laurence A. Lewis, Ph.D., Northwestern, 1965, Associate Professor—geomorphology, slope processes

J. Richard Peet, Ph.D., UC, Berkeley, 1968, Associate Professor—social, economic, community planning, Marxist geography

ADJUNCT PROFESSORS:

Dennis W. Ducsik, Ph.D., M.I.T. Department of Civil Engineering, 1976, Assistant

Professor of Science, Technology and Society—management of energy technology and coastal zone management

Harry E. Schwarz, B.C.E., George Washington, 1964, Visiting Professor of Environmental Affairs—water resource planning and water reuse

VISITING PROFESSORS:

Philip O'Keefe, Ph.D., SOAS London University, 1973—resource economics

Richard A. Warrick, Ph.D., Colorado, 1975—natural resources management, environmental perception, natural hazards

PROFESSORS EMERITUS:

Raymond E. Murphy, Ph.D., Professor of Economic Geography—urban

Henry J. Warman, Ph.D., Professor of Geography—population, geography in education, Latin America

RESEARCH AFFILIATES:

Ian Burton, Toronto; D. Garcia, Barcelona; E. Novosielska, Warsaw; T. O'Riordan, East Anglia; D. Prior, Queen's (Belfast); A. Schick, Hebrew University; D. Sharon, Hebrew University; G. Tschannerl, Dar es Salaam

STAFF:

Herbert C. Heidt, Manager, Cartography Laboratory

William J. McCall, Map Librarian

Mary A. O'Malley, Administrator

University of Colorado

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 11 M.A., 4 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 47 M.A. 20 Ph.D.

NOT IN RESIDENCE: 9 M.A. 14 Ph.D.

CHAIRMAN: M. John Loeffler

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Secretary, Department of Geography, University of Colorado, Boulder, Colorado 80309 Telephone (303) 492-8311

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography offers excellent opportunity for graduate study and research for students whose major interests are: *Physical Geography*, especially arctic, alpine and arid environments; *Resource Geography*, especially management, natural hazards, and ap-

plied remote sensing; *Urban Geography,* including economic, social, physical, population, and planning; *Geographic Education.* The United States, Latin America and the Arctic are major regions of specialization. Contemporary methodological approaches are offered and encouraged. The department is characterized by flexibility in designing programs for its students, and a wide variety of courses, seminars, field training, and independent work. Active research relationships are maintained with the Institute of Behavioral Science, Institute of Arctic and Alpine Research, Center for Urban Affairs, and Center for Urban Transportation Studies.

The University of Colorado's central library has a combined collection of 1,500,000 volumes as well as a large map library. The department maintains a combined Geographic Education Laboratory and reading room of basic texts and a small periodicals collection. A CDC 6400 computer with an extensive library of programs is located on campus. The University is situated close to such agencies as National Center for Atmospheric Research, National Oceanographic and Atmospheric Administration, and the Social Science Education Consortium in Boulder; and in Denver, numerous federal, state, and metropolitan agencies.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:

Academic Plan: Semester system. Students who are admitted to the graduate program should have a good undergraduate background in the physical or social sciences. Students with strong backgrounds in disciplines other than geography are encouraged to apply.

Graduate School: In addition to department approval, an applicant for admission as a regular degree student must (1) hold a baccalaureate degree from a college or university of recognized standing for M.A. admission, and an M.A. degree for Ph.D. admission, or have adequate preparation to enter graduate study; (2) show promise of ability to pursue satisfactorily advanced study and research, as judged by his previous scholastic record, and have at least a 2.75 undergraduate grade point average on a 4.0 system. GRE verbal and quantitative scores are required. Students are normally admitted to start their graduate studies only in summer or fall semesters.

Financial Assistance: Financial aid is available in the form of University Fellowships, Research and Teaching Assistantships. Application deadlines: for fellowships—January 15; for teaching and research assistantships—February 15.

FACULTY:

Melvin Albaum, Ph.D., Ohio State, 1969, Associate Professor—population, social, urban

Roger G. Barry, Ph.D., Southampton, England, 1965, Professor—climatology (synoptic, palaeo-climatology, Arctic)

Jacquelyn L. Beyer, Ph.D., Chicago, 1957, Professor—resource management, geographic education, Africa

T. Nelson Caine, Ph.D., Australian National, 1966, Professor—geomorphology (alpine processes)

Kenneth A. Erickson, Ph.D., UC, Berkeley, 1965, Professor—cultural, cartography, geographic thought, U.S.S.R.

David E. Greenland, Ph.D., Canterbury, 1971, Associate Professor—climatology (micro, applied, climatic change), environmental conservation

Paul K. Grogger, Ph.D., Utah, 1974, Assistant Professor—geographic education, environmental and natural resource planning, physical

Palbo Guzman-Rivas, Ph.D., Texas, 1960, Professor—geographic thought, Latin America, regional studies (Mexico)

Nicholas Helburn, Ph.D., Wisconsin, 1950, Professor—geographic education, agricultural, conservation

A. David Hill, Ph.D., Chicago, 1964, Professor—cultural, geographic education

James L. Huckabay, Ph.D., Kansas, 1975, Assistant Professor—urban and microclimatology, transportation, environmental planning

Jack D. Ives, Ph.D., McGill, 1956, Professor—geomorphology, geoecology, Arctic and Alpine environments

Robert P. Larkin, Ph.D., Pennsylvania State, 1973, Assistant Professor—population, geographic education, energy resources

Yuk Lee, Ph.D., Ohio State, 1970, Associate Professor—mathematical, quantitative, urban, land use

M. John Loeffler, Ph.D., Washington, 1952, Professor—Rocky Mountain region, water resources, physical

Donald D. MacPhail, Ph.D., Michigan, 1953, Professor—Latin America, land use, geomorphology, remote sensing

Theodore C. Myers, M.A. (History, Geography), Indiana, 1963, Assistant Professor—historical, political, Europe

Cedric D. Page, Ph.D., Rutgers, 1975, Assistant Professor—social, urban, environmental perception

Risa I. Palm, Ph.D., Minnesota, 1972, Associate Professor—urban, social, housing in American cities

Horace F. Quick, Ph.D., Michigan, 1956, Professor—biogeography, population, resource systems dynamics

C. Gilbert Schmidt, Ph.D., Washington, 1973, Assistant Professor—location theory, urban and economic, regional development

Albert W. Smith, Ph.D., Washington, 1952, Professor—cartography, map interpretation

Richard E. Stevens, Ph.D., Kansas, 1961, Professor—agricultural, Africa

Gilbert F. White, Ph.D., Chicago, 1942, Professor—natural resources, natural hazards

Columbia University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 3 M.A., 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**20 M.A.**	**11 Ph.D.**
NOT IN RESIDENCE:	**4 M.A.**	**11 Ph.D.**

CHAIRMAN: Kempton E. Webb

FOR BULLETIN AND FURTHER INFORMATION WRITE TO: Professor Kempton E. Webb, 1028 International Affairs Building, Columbia University, 420 West 118th Street, New York, New York 10027
Telephone (212) 280–4641

PROGRAMS AND RESEARCH FACILITIES: The Department offers comprehensive and rigorous preparation for research and teaching in geography, with particular strength in the following areas: Resource Studies, Environmental Management, Economic-Urban Geography, Remote Sensing Techniques, and Regional Studies. The expanding opportunities for geographers in these and other areas make Columbia's resources especially attractive.

The Department is housed in a new building with special class, laboratory, seminar, and student-study facilities for geography. It shares in the resources and facilities of a great university and a great city. The Department has a close relationship with the Goddard Institute of Space Studies and its remote sensing facilities.

Requirments for the M.A. degree consist of eight one-term courses including seminars, certification of proficiency in quantitative methods, and the writing of a research paper.

Students preparing for the Ph.D. degree complete four additional terms of course work, fulfill the language requirement, if any, for their area of specialization, pass an oral qualifying examination in one major and two minor fields, and write and successfully defend a doctoral dissertation.

Majors offered: Environmental Science (including Biogeography, Climatology, Conservation, Geomorphology, Hydrology, Oceanography, Pedology); Human Geography (including Cultural Geography, Economic Geography, Historical Geography, Land Use and Transportation, Location Theory and Regional Analysis, Political Geography, Population Geography, Spatial Organization, Urban Geography); Resources Geography (including Conservation Theory, Energy, Food Supply, World Resources); and Regional Geography (including Africa, Latin America, U.S.S.R.).

Minors offered: in any of the above fields and in research methods, such as remote sensing techniques, spatial analysis, or cartography, or in a cognate discipline.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan:* Emphasis on Ph.D. degree, normally requiring 4 to 7 years. M.A. degree program also available, usually requiring 1 to 2 years. University operates on semester system.

Admission Requirements: A baccalaureate or master's degree including no less than three years of undergraduate liberal arts courses. Recommended undergraduate training: a balanced program of study without excessive specialization in geography. The Department does not require an undergraduate major in geography.

Financial Aid: A comprehensive program including fellowships, teaching and research assistantships, and loans.

Society of Women Geographers Fellowship in Geography. One or more to women geography students; provide tuition, fees, and a stipend. Fellowship application deadline is January 10.

STAFF:

Jerry C. Coiner, Ph.D., Kansas, 1975, Lecturer—remote sensing
Stephen Gale, Ph.D., Michigan, 1969, Visiting Assistant Professor—economic
William A. Hance, Ph.D., Columbia, 1949, Professor—Africa, economic
Colin J. High, Ph.D., Bristol, 1971, Assistant Professor—environment, systems analysis in ecology
Robert M. Hordon, Ph.D., Columbia, 1970, Visiting Associate Professor—environment
Paul E. King, Ph.D., Ohio State, 1972, Assistant Professor—urban, social
Robert A. Lewis, Ph.D., Washington, 1964, Professor—U.S.S.R., population
Paul I. Mandell, Ph.D., Columbia, 1969, Assistant Professor—natural resources
Douglas R. McManis, Ph.D., Chicago, 1964, Associate Professor—historical
Miklos Pinther, B.S., Columbia, 1967, Lecturer—cartography
Theodore Shabad, Ph.D., Columbia, 1976, Lecturer—resources of the U.S.S.R.
Kempton E. Webb, Ph.D., Syracuse, 1958, Professor—Latin America, cultural
Warren E. Yasso, Ph.D., Columbia, 1964, Associate Professor—geomorphology, oceanography
Leonard Zobler, Ph.D., Columbia, 1953, Professor—resource use, soils, hydrology

Columbia University, Teachers College

DEPARTMENT OF SOCIAL STUDIES

DEGREES OFFERED: M.A., M.Ed., Ed.D., Ed.D. in College Teaching

GRADUATE STUDENTS IN RESIDENCE: 2 Masters 5 Doctoral

ADVISOR: Douglas R. McManis

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor Douglas R. McManis, Department of Social Studies, Teachers College, Columbia University, New York, New York 10027

PROGRAMS AND RESEARCH FACILITIES: The Department offers graduate training in geographic pedagogy and several fields of geography. Specialties include urban, historical, and political geography, ecology, and geography in education. All programs are designed to meet individual student needs and utilize the full resources of Teachers College and other graduate divisions of Columbia University. For a doctorate a minimum of 90 points beyond the bachelor's degree is required. The program normally takes four semesters' study; part-time students may expect to take longer. The M.A. program emphasizes preparation for teach-

ing or doctoral work; thesis is optional, and the degree is normally completed in two terms. The M.Ed. program is designed for experienced secondary and junior college teachers.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Teachers College operates on an academic year divided into two semesters and two summer terms each of six weeks' length. Admission requirements are detailed in the College catalog and degree statements are obtainable from the department. Teachers College maintains a substantial program of student financial aid.

STAFF:

Douglas R. McManis, Ph.D., Chicago, Associate Professor—historical, political, Anglo-America, teaching of geography

University of Delaware

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S.

GRANTED 7/1/76–6/30/77: 1

GRADUATE STUDENTS IN RESIDENCE: 11

NOT IN RESIDENCE: 3

CHAIRMAN: John R. Mather

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. John R. Mather, Chairman, Department of Geography, University of Delaware, Newark, Delaware 19711
Telephone (302) 738-2294

PROGRAMS AND RESEARCH FACILITIES: The Department offers a Masters degree (M.A. or M.S.). The Program is unusual in that it provides the opportunity for a small number of graduate students to interact frequently with a staff whose diverse interests all touch in varying degrees upon one of two particular themes: 1) climatology, emphasizing the application of energy and water balance principles to urban, agricultural, and coastal environs; and 2) urban landscapes and planning, viewed from historical, economic, cultural, behavioral, and physical perspectives. Students will be expected to work in one of these two areas in which the Department specializes. Ample research facilities to support research exist. Computer facilities are primarily supported by a new Burroughs 7700 system, although users also have access to HP2000, PDP 11/70 and DEC 10 systems. All campus computers are accessible from on-line terminals of which the Department has two. Geography also maintains a Bendix 36" x 40" digitizer. In addition, the Computing Center supports an excellent library of graphics and mapping programs (including the Harvard mapping series) as well as three

plotters and Tektronix CRTs. The Department's climatological facilities include numerous instruments for microclimatic investigations and a climatological laboratory. These facilities are complemented by the extensive library holdings of the C. W. Thornthwaite Laboratory of Climatology which has been acquired by the University. The Program is further enhanced by close cooperation with the Institute of Energy Conversion and the College of Marine Studies.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates on a semester system. General admissions requirements are an undergraduate index of 2.5 or more and combined GRE scores of at least 1050; the Department will consider qualified applicants without previous background in geography, though additional preliminary work may be required. Financial aid is available through research assistantships to highly qualified applicants.

STAFF:

Edmunds V. Bunkse, Ph.D., UC, Berkeley, 1973, Assistant Professor—cultural-historical, landscape aesthetics, urban, U.S.

Richard T. Field, M.S., Chicago, 1962, Lecturer—micro-climatology, energy budgeting in human and natural systems, ecology

Laurence S. Kalkstein, Ph.D., Louisiana State, 1974, Assistant Professor—biogeography, conservation, ecological problems, climatology

Vytautas Klemas, Ph.D., Technical University, Braunschweig, 1965, Associate Professor (joint appointment with Marine Studies)—remote sensing, environmental monitoring, coastal resource management

John R. Mather, Ph.D., Johns Hopkins, 1951, Professor and Chairman—applied climatology, meteorology, water recources

Thomas C. Meierding, Ph.D., Colorado, 1977, Assistant Professor—geomorphology, cartography, air photo interpretation

Peter W. Rees, Ph.D., UC, Berkeley, 1971, Associate Professor—urban, historical-economic, Latin America

Roger S. Ulrich, Ph.D., Michigan, 1973, Assistant Professor—behavioral, urban, visual landscapes

Cort J. Willmott, Ph.D., UCLA, 1977, Assistant Professor—physical climatology, quantitative methods

University of Denver

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 1 M.A., 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 9

NOT IN RESIDENCE: 3

CHAIRMAN: Robert D. Rudd

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Robert D. Rudd, Chairman, Department of Geography, University of Denver, University Park Campus, Denver, Colorado 80208
Telephone (303) 753-2513

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography at the University of Denver offers graduate work in the following areas of concentration: geomorphology, urban and regional studies, and social geography. In each of these areas, stress is placed on interdisciplinary studies; the Department enjoys close working relations with other departments within the University. Cooperative programs of work-study can be arranged occasionally with local planning agencies, and there is opportunity for cooperative research in physical geography with locally-based federal agencies.

The Department is housed in a group of offices, classrooms, and special purpose rooms in Pioneer Hall. Library and map resources include those of the Department, the University, and the Denver metropolitan area. The University possesses excellent computer facilities, and students are encouraged to use the Center. Field work and in-service experiences are encouraged.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University of Denver operates on a quarter system.

Candidates for graduate degrees in the Department of Geography are required to take the Graduate Record Examination as part of their admission requirements. Among the criteria applied in determining eligibility for admission are an acceptable undergraduate scholastic record, satisfactory scores on the Aptitude Test for the Graduate Record Examination, and appropriate references.

Application for the admission to graduate study is advisable at least two quarters prior to the expected date of enrollment.

A limited number of University teaching and research assistantships as well as tuition scholarships are available. Assistantships carry a stipend with remission of tuition.

STAFF:

John E. Costa, Ph.D., Johns Hopkins, 1973, Assistant Professor—fluvial geomorphology, environmental geology

Clark N. Crain, Ph.D., Clark, 1951, Professor Emeritus—regional development, historical, Asia, South Asia, Middle East

Thomas M. Griffiths, Ph.D., Northwestern, 1953, Professor—geomorphology, glaciology, physical, Anglo-America, Latin America, Europe

Richard F. Hadley, M.A., Minnesota, 1950, Adjunct Professor—geomorphology, erosion and sedimentation, hydrology

Laurance C. Herold, Ph.D., Southampton, 1968, Associate Professor—systematic specialization, cultural, regional, British Isles, American Southwest and Northern Mexico

Paul H. Leskinen, Ph.D., UC, Los Angeles, 1976, Assistant Professor—biogeography, Quaternary environments, desert environment

David B. Longbrake, Ph.D., Iowa, 1972, Assistant Professor—urban, urban and regional planning, land use and development, quantitative methods

Robert D. Rudd, Ph.D., Northwestern, 1953, Professor and Chairman—physical, remote sensing, climatology

Terrence J. Toy, Ph.D., Denver, 1973, Assistant Professor—climatic geomorphology, quantitative, hydrology

East Carolina University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A.Ed.

GRANTED 7/1/76–6/30/77: 2

GRADUATE STUDENTS IN RESIDENCE: 18

NOT IN RESIDENCE: 3

CHAIRMAN: Ennis L. Chestang

FOR CATALOG AND FURTHER INFORMATION WRITE TO: The Graduate Advisor, Department of Geography, East Carolina University, Greenville, North Carolina 27834

PROGRAMS AND RESEARCH FACILITIES: The Department offers two Masters degrees, the M.A. and the M.A.Ed. For both degrees there are thesis and nonthesis programs. The M.A. degree is an academic degree; the M.A.Ed. is a professional degree aimed toward certifying the student to teach.

The Departmental map library is a depository for U.S.G.S., Defense Mapping Agency, National Ocean Survey, and, on temporary basis, Aeronautical Charts. There is a sizeable air photo collection which is concentrated on North Carolina and the other Southeastern States. Separate laboratories for physical geography, air-photo interpretation, quantitative methods, and cartography are available. The Institute for Coastal and Marine Resources, in which the Department participates, offers additional support, facilities, and courses for graduate students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The graduate program is open to students with either an undergraduate major in geography or satisfactory course work in the field. Students with limited backgrounds in geography may be accepted under certain conditions. Requirements for admission are set forth in the Graduate Bulletin, which is available from the Graduate School.

Assistantships are available to qualified students. The stipend is normally from $2000 to $2500 per academic year. In addition, a limited number of Special Talent assistantships to aid in defraying out-of-state tuition are awarded by invitation. A prospective Special Talent student should have a transcript and two letters of re-

commendation sent to the Graduate Advisor. This will permit a determination to be made whether to invite the student to apply for a Special Talent Assistantship.

STAFF:

Ralph E. Birchard, Associate Professor, B.A. Northern Iowa, M.S. Illinois, Ph.D. Iowa
Jack Blok, Assistant Professor, B.A., M.A. UCLA, Ph.D. Oregon State
Ennis L. Chestang, Professor and Chairperson, B.S., M.S. Florida State, Ph.D. Indiana
Robert E. Cramer, Professor, A.B. Ohio, M.S., Ph.D. Chicago
William W. Hankins, Associate Professor, A.B., M.S. (Planning), M.S. (Geography) Florida State
John Fraser Hart, Distinguished Visiting Professor (Fall Semester 1977-78), A.B. Emory, Ph.D. Northwestern
Edward P. Leahy, Associate Professor, B.M.E. Virginia, M.B.A. Columbia, Ph.D. Florida
Palmyra Leahy, Assistant Professor, A.B., Licenciado, Minas Gerais (Brazil)
Janet H. Petterson, Assistant Professor, A.B. Mount Holyoke, M.A. Ohio State
Philip Shea, Assistant Professor, B.A. Middlebury, M.A., Ph.D. Michigan State
Donald Steila, Associate Professor, B.S., M.A. Kent State, Ph.D. Georgia
Richard A. Stephenson, Professor, B.A. Kent State, M.S. Tennessee, Ph.D. Iowa
Ronald J. Swager, Assistant Professor, A.B., A.M., Ph.D. Illinois
Douglas C. Wilms, Associate Professor, B.A., M.A., Missouri, Ph.D. Georgia

Eastern Kentucky University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A. with specialization in Planning, M.A. in Education

GRANTED 7/1/76–6/30/77: 6

GRADUATE STUDENTS IN RESIDENCE: 4

NOT IN RESIDENCE: 4

CHAIRMAN: Ronald L. Marionneaux

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Ronald L. Marionneaux, Department of Geography, Eastern Kentucky University, Richmond, Kentucky 40475
Telephone (606) 622-2251

PROGRAMS AND RESEARCH FACILITIES: Four major programs are offered at the Masters level. They are: Planning, Cartography-Remote Sensing, General, and Education.

In addition to special teaching equipment, such as a large collection of wall maps and modern visual aids, the departmental spaces include laboratories housing cartographic, climatic, photographic, and photogrammetric equipment

and data for the instruction of and research by faculty and students. A departmental map reading room is maintained for student convenience and study. The department maintains a weather station.

Continued expansion of departmental capabilities has been programmed. These plans will be aided by the Geographical Studies and Research Center. The Center, while independent of the Department, is closely allied and provides research opportunities for graduate students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Academic plans and admission requirements are outlined in the Graduate Bulletin of Eastern Kentucky University. Graduate assistantships are available. The University is on a semester system.

STAFF:

William G. Adams, Ph.D. candidate, Kentucky, Assistant Professor—data acquisition, Latin America, physical

Timothy J. Kubiak, Ph.D., Michigan, 1973, Associate Professor—planning, economic

Ronald L. Marionneaux, Ph.D., Indiana, 1970, Professor and Chairman—planning, urban, environmental

Dale R. Monsebroten, Ph.D., Indiana State, 1973, Associate Professor—physical, climate, environmental planning

Dennis E. Quillen, Ph.D., Tennessee, 1975, Assistant Professor—transportation, economic, planning

Joseph R. Schwendeman, Jr., Ph.D., Indiana, 1966, Professor (part-time)—physical, North America, climate

Joseph R. Schwendeman, Sr., Ph.D., Clark, 1943, Dist. Professor—cultural, Latin America

Milos M. Sebor, Ph.D., Puno, London, 1964, Professor—planning, East Europe

Wilma J. Walker, Ph.D. candidate, Kentucky, Assistant Professor—cultural, political, Africa

New faculty member to be hired for Fall 1977.

Eastern Michigan University

DEPARTMENT OF GEOGRAPHY AND GEOLOGY

DEGREES OFFERED: M.A., M.S.

GRANTED 7/1/76–6/30/77: 5

GRADUATE STUDENTS IN RESIDENCE: Approximately 12

NOT IN RESIDENCE: Approximately 15

ACTING HEAD: Elwood J. C. Kureth

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Elwood J. C. Kureth, Acting Head, Department of Geography and Geology, Eastern Michigan University, Ypsilanti, Michigan 48197
Telephone (313) 487-0218

PROGRAMS AND RESEARCH FACILITIES: The Department offers the M.A. and M.S. degrees through a range of programs in which the individual needs and career plans of each student are given careful consideration. Students planning to work toward the doctorate elsewhere pursue a course of study emphasizing research activities; those who envision the master's degree as a terminal degree leading to employment in government or industry are offered programs emphasizing planning or regional specialization; and those contemplating a teaching career are encouraged to broaden their range of geographic competence. A thesis is required of all prospective doctoral students. Others do special projects in their area of particular interest in lieu of a thesis.

Plan A: Students who intend to prepare for further study toward a doctoral degree will be required to write a thesis. The thesis option is also available to students with other career objectives. The subject of the thesis is to be determined by the student and the advisers with the aim of providing an opportunity for the student to work in a special field of interest.

Plan B: Students who intend to terminate their academic studies upon completion of the master's degree to pursue applied careers in geography will not be required to write a thesis. The following options will be available: (1) completion of an internship program (4 hours), and a paper of publishable quality (2 hours), or (2) those who are currently employed in some field of geography, geology, or an applied equivalency may choose to present in a classroom environment the practical application of their geographic or geologic specialty (4 hours), and the completion of a paper of publishable quality (2 hours). In either case, the student's selection must be approved by the department. Students selecting Plan B will emphasize, within the 24 credit hours of academic work, a block a courses that teach methods and techniques for solving problems in their selected fields of interest.

Plan C: Students who are practicing teachers will *not* be required to write a thesis. In lieu of 6 thesis hours, students will complete an independent library study of the literature in a selected field of geography or geology (2 hours) and will execute a supervised teaching project (4 hours) within the framework of their own classroom.

Although the large size and varied background of the staff ensures a range of course offerings and research guidance wide enough to encompass nearly any systematic or regional interest on the part of the students, the Department's strongest positions are in the areas of urban, economic, cultural, and physical geography. Staff interest combines with an ideal location for urban studies on the expanding fringe of Detroit providing a focal point for instruction and research.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan:* Quarter System. *Admission Requirements:* Undergraduate Grade Average of B or better. *Financial Aid:* Departmental graduate assistants and teaching fellows ($3000 to $3200).

STAFF:

Paul O. Buckholts, Ph.D., Harvard, 1957, Professor—political, Soviet Union

Allen Cichanski, Ph.D. candidate, Ohio State, Assistant Professor—mineralogy, petrology, earth science education

Robert T. Ernst, Ph.D., Florida, 1973, Assistant Professor—urban planning

E. Lorene Hall, M.S., Eastern Michigan, 1960, Assistant Professor—Michigan, the American Midwest, geographic education

George M. Howe, Ph.D., Clark, 1956, Professor—weather and climate

Eugene Jaworski, Ph.D., Louisiana State, 1971, Associate Professor—geomorphology, soils, cartography, remote sensing

Elwood J. C. Kureth, Ph.D., Michigan, 1971, Associate Professor—world regions, methods of teaching geography, Anglo-America

Horace A. MacMahan, Jr., Ed. D., Colorado, 1967, Professor—earth science, physical, earth science education

Robert B. Mancell, Ph.D., Michigan, 1974, Assistant Professor—economic, urban, Latin America

James R. McDonald, Ph.D., Illinois, 1964, Professor—human migrations, geographic thought, Europe

Marshall S. McLennan, Ph.D., UC, Berkeley, 1973, Assistant Professor—cultural, urban, Southeast Asia

Andrew A. Nazzaro, Ph.D., Michigan State, 1974, Assistant Professor—cultural, Africa, medical, rural development

Lawrence Ogden, D.Sc., Colorado School of Mines, 1958, Professor—earth science education, economic geology

Carl F. Ojala, Ph.D., Georgia, 1972, Associate Professor—economic, cultural, North America

Ross N. Pearson, Ph.D., Michigan, 1954, Professor—geographic education, Latin America

C. Nicholas Raphael, Ph.D., Louisiana State, 1968, Associate Professor—geomorphology, coastal zones

Ranjit Tirtha, Ph.D., North Carolina, 1961, Associate Professor—world regions, population, Asia

Daniel S. Turner, Ph.D., Wisconsin, 1948, Professor—economic geology, earth science, stratigraphy, glacial geology

Robert M. Ward, Ph.D., Michigan, 1971, Associate Professor—cartography, natural environmental hazards, land use

Florida Atlantic University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A. (Cooperative Ph.D. with University of Florida and Florida State)

GRANTED 7/1/76–6/30/77: 0

GRADUATE STUDENTS IN RESIDENCE: 13 Masters

NOT IN RESIDENCE: 3

CHAIRMAN: David R. Lee .

FOR CATALOG AND FURTHER INFORMATION WRITE TO: The Chairman, Department of Geography, Florida Atlantic University, Boca Raton, Florida 33431 Telephone (305) 395-5100, ext. 2338

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography at Florida Atlantic University offers a program of study leading to the M.A. degree. Students may specialize in the areas of research concentration of the faculty members. These include, but are not restricted to the following: economic geography, cultural geography, urban geography, remote sensing, and Latin America. Interdepartmental graduate programs in urban studies, Caribbean studies, subtropical marine studies, and environmental studies can also be arranged.

Florida Atlantic University is an upper division university in the state system offering advanced training at the junior, senior, and graduate levels. Present facilities include: a newly-equipped cartography laboratory; a well-equipped remote sensing laboratory (which also operates a NASA Earth Resources Survey Test Site); more than 23,000 maps in the Army Map Service Depository Collection; a quantitative techniques laboratory and access to the Univac 1106 computer; a darkroom; and a well-stocked library.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The M.A. program calls for completion of 45 quarter credits of course work and thesis writing. Students whose undergraduate background is judged insufficient preparation for graduate study may be required to complete additional course work. At least 20 of the 45 credits must be seminars within the department. One seminar on the history and philosophy of geography will be a part of each student's program.

Each student will be required to write a thesis on a topic chosen by the student in consultation with the faculty. There is no comprehensive examination, but an oral review of the student's research findings will be conducted prior to thesis approval. Students who have had no undergraduate course work in foreign languages or statistics will be required to make up this deficiency.

A Bachelor's degree from an accredited college; a B average in junior and senior years or a combined score of 1000 or more on the verbal and quantitative sections of the Graduate Record Examination; a B average in geography; and the equivalent of an undergraduate major in geography are desirable. Candidates who do not meet all these requirements may petition the College of Social Science for admittance.

A limited amount of financial aid is available. Stipends usually pay about $2500 for the academic year and entail either teaching or research in the department. Some out-of-state tuition waivers are also available.

STAFF:

Alan Craig, Ph.D., Louisiana State, 1966, Associate Professor—human, physical, Latin America

Preston James, Ph.D., Clark, 1923, Adjunct Professor—regional, history of geography, Latin America

James Latham, Ph.D., Pennsylvania, 1959, Professor—remote sensing, urban, Anglo America

David Lee, Ph.D., UCLA, 1967, Associate Professor and Chairman—cultural, cartography, Africa

Ronald Schultz, Ph.D., Washington, 1971, Assistant Professor—geographic methodology, urban, quantitative

Robert Tata, Ph.D., Syracuse, 1968, Associate Professor—economic development, methodology, Latin America

Florida State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S., M.A. (Cooperative Ph.D. with University of Florida)

GRANTED 7/1/76–6/30/77: 6

GRADUATE STUDENTS IN RESIDENCE: 34

NOT IN RESIDENCE: 6

CHAIRMAN: To be named

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Coordinator, Department of Geography, Florida State University, Tallahassee, Florida 32306 Telephone (904) 644-1706

PROGRAMS AND RESEARCH FACILITIES: Two graduate programs are available: (1) a professional program leading to either the M.A. or M.S. degrees in Geography, and (2) an interdepartmental program for junior and community college instructors. The professional program consists of a minimum of 45 quarter hours and emphasizes problem-solving approaches in two principal areas of concentration: resources analysis and environmental management and human spatial systems. A special non-thesis curriculum in the spatial analysis of land use has been developed with the aid of a grant from the National Science Foundation. Other areas of concentration include research techniques and Geography in education. The Department also cooperates with the University of Florida in offering a Ph.D. program (participation requires prior admission into the University of Florida Ph.D. program in Geography) and with Urban and Regional Planning at Florida State University in concentrations in environmental management and planning, land use planning, and transportation planning. A curriculum in regional science is offered jointly with Economics and Urban and Regional Planning.

The University has a rich variety of support courses, and the library houses a remarkable collection of maps, atlases, and data sources. The Department offers excellent research facilities including a modern Cartography Laboratory, a Map Reproduction Center, and a Calculating Laboratory. Computing time is available on the University's CDC Cyber 73 digital computer. Proximity to the campus of state and regional agencies in Florida's capital city is advantageous to graduate research. The Florida Resources and Environmental Analysis Center (housed within the Department of Geography) provides opportunities for funded research for both graduate students and faculty.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:

Admission Requirements: An undergraduate major in geography is not required; rather, students with majors in other disciplines are encouraged to apply with the understanding that minimal deficiencies must normally be rectified for completion of the program. Applicants must submit evidence of strong academic performance in their undergraduate work and must have taken the general aptitude test of the Graduate Record Examination. Undergraduate training in mathematics, statistics, or computer science is desirable. Quarter System.

Financial Aid: University Fellowships—Stipend for four quarters is $3600. Department of Geography Graduate Assistantships—Stipend is $2100-$4200 for three quarters. Both may carry a waiver of out-of-state fees.

Other Financial Aid: Research Assistantships and hourly wage employment in funded research projects are available in the Florida Resources and Environmental Analysis Center.

GRADUATE FACULTY:

Earl J. Baker, Ph.D., Colorado, 1974, Assistant Professor—behavioral analysis, perception of natural hazards

William R. Brueckheimer, Ph.D., Michigan, 1954, Professor—conservation, resource problems, political, recreation

Harrison V. Chase, M.A., Michigan, 1940, Associate Professor—oceanic resources, public lands, Far East

Del Dyreson, Ph.D., Denver, 1971, Associate Professor—modeling of spatial behavior, quantitative methods, urban, computer graphics, remote sensing, geographic information systems

Edward A. Fernald, Ph.D., Michigan State, 1968, Professor—geographic education, land and resource use, Florida

Harold McConnell, Ph.D., Iowa, 1964, Professor—quantitative methods, geomorphology

Donald J. Patton, Ph.D., Harvard, 1949, Professor—resources, environmental perception, economic, Anglo-America

Burke G. Vanderhill, Ph.D., Michigan, 1956, Professor—settlement, historical landforms, Canada, United States, Europe

Karen Walby, Ph.D., Ohio State, 1977, Assistant Professor—political behavior, urban

Morton D. Winsberg, Ph.D., Florida, 1958, Associate Professor—geographic thought, agricultural, research methods, computer graphics, Latin America

University of Florida

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., M.A.T., M.S.T., Ph.D.

GRANTED 7/1/76-6/30/77: 7 Masters, 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 37

NOT IN RESIDENCE: 9

ACTING CHAIRMAN: Clark I. Cross

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Department of Geography, University of Florida, Gainesville, Florida 32611
Telephone (904) 392-0495

PROGRAMS AND RESEARCH FACILITIES: The MASTER OF ARTS degree may be taken with emphasis on economic or cultural geography, or the student may elect a MASTER OF SCIENCE degree with emphasis on physical geography.

The MASTER OF ARTS and MASTER OF SCIENCE IN TEACHING degrees may be earned in geography, These non-thesis degrees are designed for persons who intend to teach in community colleges.

The DOCTOR OF PHILOSOPHY degree is offered with specialization in economic geography, particularly agricultural geography, the geography of resource use, and urban geography and with regional specialization in Southeastern United States, Latin America, and Africa south of the Sahara. This degree program operates cooperatively with Florida State and Florida Atlantic Universities. Under the program students may take work on any campus.

Of many university-wide facilities, the following deserve special mention: the CENTERS FOR LATIN AMERICAN AND AFRICAN STUDIES; the UNIVERSITY LIBRARY with its large map and Latin American collection; the HUME AGRICULTURAL LIBRARY, which is one of the best such libraries in the South; the LATIN AMERICAN DATA BANK; the COMPUTING CENTER; the URBAN AND REGIONAL STUDIES CENTER; the WATER RESOURCES RESEARCH CENTER; and participation in the ORGANIZATION FOR TROPICAL STUDIES (OTS).

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University of Florida operates on the quarter system. Admission to the Graduate School requires (1) presentation of a baccalaureate degree from an accredited college, (2) a B average or its equivalent in prior junior or senior level undergraduate work, (3) a minimum score of 1,000 on the aptitude tests of the Graduate Record Examination (GRE) and (4) three letters of recommendation.

Applications for admission to the University and the Graduate School must be made not later than ten weeks before the proposed date of entry. The necessary information and forms, including requests for housing, may be obtained from the Office of Admissions, University of Florida. Applicants may at the same time request a copy of the Graduate School Catalog. Foreign students should direct their requests to the Adviser to Foreign Students.

The University offers graduate fellowships and assistantships ranging from $3120 to $3900 for nine months; waivers of out-of-state fees of $900 may be arranged. The awards require no service. NDEA Title VI Fellowships will be available for students interested in Latin American Studies and in African Studies.

The Department of Geography also offers one-third-time assistantships which provide a stipend of $3200 for nine months; waivers of out-of-state fees of $900 may be arranged. Service generally consists of teaching and research duties.

APPLICATIONS FOR FELLOWSHIPS AND ASSISTANTSHIPS SHOULD BE RECEIVED BEFORE FEBRUARY 1.

STAFF:

Gustavo A. Antonini, Ph.D., Columbia, 1968, Associate Professor—Latin American studies, geomorphology

Helen J. Armstrong, Ph.D., Oregon State, 1977, Associate Librarian—map use and interpretation, geographical bibliography

Raymond E. Crist, Ph.D., Grenoble, 1937, Emeritus Research Professor—Caribbean, Andean America, Mediterranean Basin, land tenure and use

Clark I. Cross, Ph.D., Washington, 1951, Associate Professor—physical resource use, air photo interpretation, U.S.S.R.

John R. Dunkle, Ph.D., Clark 1955, Professor and Assistant Dean, University College—cartography

James Henry, Ph.D., Kansas, 1977, Assistant Professor—climatology

Virginia R. Hetrick, Ph.D., Washington, 1973, Assistant Professor—urban, transportation, quantitative, public policy

Ary J. Lamme III, Ph.D., Syracuse, 1969, Assistant Professor—historical, Anglo-America

Robert B. Marcus, Ed.D., Florida, 1956, Professor—Florida, geographic education, physical, resource use

Shannon McCune, Ph.D., Clark, 1939, Professor—Eastern Asia, economic, political

David L. Niddrie, Ph.D., Manchester, 1965, Professor—Southern Africa, Caribbean, agricultural, land use

Louis A. Paganini, Ph.D., Florida, 1970, Assistant Professor—Latin America, cultural, physical, biogeography

Hugh Popenoe, Ph.D., Florida, 1960, Associate Professor and Director of International Programs—tropical land use, tropical ecology

Gary W. Shannon, Ph.D., Michigan, 1970, Associate Professor—urban, economic, geography of health (on leave)

Carl W. Spurlock, Ph.D., Oklahoma, 1972, Assistant Professor—economic, land use and resource analysis, geographic information systems (joint appointment with University College)

S4

George Washington University

DEPARTMENT OF GEOGRAPHY AND REGIONAL SCIENCE

DEGREES OFFERED: M.A., M.A. Ed.

GRANTED 7/1/76–6/30/77: 4 M.A.

GRADUATE STUDENTS IN RESIDENCE: 12

NOT IN RESIDENCE: 3

CHAIRMAN: Marvin Gordon

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Marvin Gordon, Chairman, Department of Geography, George Washington University, Washington, D.C. 20052
Telephone (202) 676-6185

PROGRAMS AND RESEARCH FACILITIES: Graduate offerings and research guidance strongly reflect department interests in urban geography, location theory, population geography, regional development, transportation, and resource management.

Flexibility and breadth are brought to the graduate program by courses available through the Washington Consortium of Universities, other departments of the Graduate School of Arts and Sciences, the Latin American Studies program and the Sino-Soviet Institute.

The location of the University in central Washington, D.C. provides easy access to libraries of the U.S. Government and many other agencies. The University's Computer Center also makes its facilities available, at no cost, to qualified graduate students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan:* Course of study leading to the degree of Master of Arts consists of 30 semester hours with thesis and 36 semester hours without thesis. Students may opt to test their proficiency in statistics as a substitute for a language examination. Candidates must take a general examination in three fields.

Admission Requirements: Bachelor of Arts degree with a major in Geography. Students from other disciplines must be prepared to make up deficiencies.

STAFF:

Joseph Baclawski, Ph.D., Michigan, Professor—Soviet Union
Allan K. Fitzsimmons, Ph.D., UCLA, Assistant Professor—resource, cultural
Marvin Gordon, Ph.D., Columbia, Professor—population, Latin America
John Lowe, Ph.D., Clark, Associate Professor—urban, transportation
J. Warren Nystrom, Ph.D., Clark, Professor (Part-time)—political
Eldor Pederson, Ph.D., UC, Berkeley, Associate Professor—urban
Donald Starsinic, M.A., Chicago, Assistant Professor—population
Philip True, M.S., Chicago, Associate Professor—China

Georgia State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A.T.

GRANTED 7/1/76–6/30/77: 3 M.A.

GRADUATE STUDENTS IN RESIDENCE: 25

NOT IN RESIDENCE: 5

INTERIM CHAIRMAN: Richard Pillsbury

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Malcolm A. Murray, Graduate Director, Department of Geography, Georgia State University, University Plaza, Atlanta, Georgia 30303
Telephone (404) 658-3232

PROGRAMS AND RESEARCH FACILITIES: The program is designed to stress the following specializations: urban, cartography and computer graphics, and population-cultural.

Georgia State University is located in the heart of downtown Atlanta and the Department is within easy walking distance of a variety of federal, state, and municipal agencies. The Department maintains close working relations with the University's School of Urban Life, planning agencies in the metropolitan area, and with other geography departments in the state and region. Internship opportunities are available. The Department is housed on the eleventh floor of the new Urban Life Center with excellent facilities including a cartography production laboratory, a computer terminal, and an electronic digitizer.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University follows the quarter system. Applicants for admission to the graduate school must have completed a Bachelor's program from an accredited institution and present acceptable scores on both the Aptitude and Advanced portions of the Graduate Record Examination. A number of graduate assistantships will be available on a competitive basis. Georgia State University is an Affirmative Action/Equal Employment and Educational Opportunity Institution.

STAFF:

John M. Ball, Ph.D., Michigan State, 1961, Professor of Geography and Professor of Education—geographic education, Latin America

Sanford H. Bederman, Ph.D., Minnesota, 1973, Professor—cultural, Africa, poverty

Borden D. Dent, Ph.D., Clark, 1970, Associate Professor—cartography, urban, computer graphics

Frank Drago, B.A., Connecticut, 1972, Staff Cartographer

Truman A. Hartshorn, Ph.D., Iowa, 1968, Associate Professor—urban, transportation, American cities

L. Hugh Hutchinson, M.Ed., Georgia State, 1975, Assistant Professor and Assistant Dean, College of Urban Life—meteorology, climatology

Malcolm A. Murray, Ph.D., Syracuse, 1955, Professor—population, computer graphics, geographic thought

Richard Pillsbury, Ph.D., Pennsylvania State, 1968, Associate Professor—historical-urban, social

University of Georgia

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D., M.Ed., Ed.D

GRANTED 7/1/76–6/30/77: 11 M.A., 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 21 Masters 15 Ph.D.

NOT IN RESIDENCE: 9 Masters 14 Ph.D.

HEAD: James O. Wheeler

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Graduate Studies Committee, Department of Geography, University of Georgia, Athens, Georgia 30602
Telephone (404) 542–2856

PROGRAMS AND RESEARCH FACILITIES: Work is offered in human, economic, physical, techniques, and regional geography. Students in the various degree programs will normally develop a background in one of these subject areas, with more specific concentrations depending on thesis or dissertation research. In each subject area several lecture courses, seminars, and directed problems are available. The department offers a substantial array of courses in geographic techniques including cartography, remote sensing, quantitative analysis, and field research methods. The M.Ed. and Ed.D. with a concentration in geography are also awarded in conjunction with the College of Education.

A modern air-conditioned building provides well-equipped teaching and research accommodations including cartographic, photo interpretation and remote sensing equipment and laboratories. The department has a broad range of computer and statistical facilities such as remote terminal, key punch, digitizer, interactive computer graphics system, program library, and many kinds of calculating machines. Other facilities such as individual student carrels, research rooms, a dark room, a rooftop weather station, field vehicles and equipment combine to make the department a stimulating place in which to study. Located in the same building is the Cartographic Services Laboratory which assists faculty and student research efforts.

The University's library holdings, particularly in geography, are extensive. Over 225,000 maps and 100,000 aerial photos are maintained in the nearby Science

Library. The Computer Center operates one of the largest and most advanced computer facilities in the U.S., including the IBM 370/158, IBM 360/65, CDC 6400, and CDC 1401 with associated plotting and printing equipment.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Graduates of any accredited institution are eligible to apply for admission to the University's Graduate School. All correspondence concerning admission should be directed to the Department of Geography. Upon receipt of all required admission materials the Department's Graduate Studies Committee will evaluate the application. When admission is granted, a $10.00 application fee is required for formal acceptance—this fee is non-refundable. No fee, therefore, will be required from unsuccessful applicants. Normally graduate students are admitted to initiate their course work in the Fall Quarter, though exceptions are sometimes made. Whenever possible, prospective students should file completed applications no later than February 15 for admission in the following Fall Quarter.

Applicants should normally have had a "B" or higher undergraduate grade average. Evidence indicates that applicants with a combined score of less than 1000 on the Aptitude Test of the Graduate Record Examination or its equivalent on the Miller Analogies Test have less than an even chance of completing a degree program.

A reading knowledge of at least one foreign language is required in both the M.A. and Ph.D. programs at Georgia. For the Ph.D., the Department of Geography requires a reading knowledge of two, one of which will be either French, German, or Russian; or an advanced knowledge (including conversational ability) in one language; or a reading knowledge of one language plus an advanced knowledge of an acceptable alternative research tool (statistics, mathematics, computer programming).

In certain cases it may be deemed advisable for a beginning graduate student to take undergraduate level courses to rectify deficiencies in his undergraduate program. This is especially true in the cases of graduates of small institutions with only a limited curriculum in geography and allied disciplines.

Normally awards are made for the nine-month academic year, contingent upon maintenance of a satisfactory (B or better) academic record.

(a) Teaching Assistantships pay $3250-3475, plus out-of-state tuition, and require one-third time work. Up to 25 such appointments annually.

(b) Graduate School Assistantships pay $3250-3475 for nine-month appointments and $4333-4633 for twelve-month appointments plus out-of-state tuition, and require one-third time work. Recipients are selected from applicants from all university departments on a competitive basis. Recipients are employed in research or as assistants to faculty members.

(c) Fellowships:
Atlantic Steel Company Research Fellowships in Economic Geography (3) pay $500 tax-exempt, and are awarded to assist in dissertation and thesis research.

(d) Support through funded research projects is also normally available.

The University of Georgia operates on the academic quarter plan with three quarters constituting an academic year. Summer sessions are also held. Normally

the Department supports deserving graduate students for at least two years in an M.A. program and three years in a Ph.D. program.

STAFF:

James A. Barnes, Ph.M., Wisconsin, 1938, Associate Professor—cartography-air photo, population, quantitative methods, location theory

David C. Barrow, M.A., Georgia, 1966, Assistant Professor—weather and climate

William H. Berentsen, Ph.D., Ohio State, 1976, Assistant Professor—development, transportation, East Europe and U.S.S.R., quantitative methods

George A. Brook, Ph.D., McMaster, 1976, Assistant Professor—geomorphology, Africa

Robert M. Burrill, Ph.D., Kansas, 1970, Assistant Professor—biogeography, soils, microclimatology

Carleton W. Cox, Ph.D., Wisconsin, 1977, Assistant Professor—cartography, air photo

**Louis De Vorsey, Ph.D., London, 1965, Professor*—historical

**James S. Fisher, Ph.D., Georgia, 1967, Associate Professor*—North America, economic, methodology

R. James Heyl, Ph.D., Illinois, 1962, Associate Professor—transportation, recreation, industrial

**Don R. Hoy, Ph.D., Illinois, 1960, Professor*—Latin America, economic

John R. Jensen, Ph.D., UCLA, 1976, Assistant Professor—remote sensing, cartography

**James B. Kenyon, Ph.D., Chicago, 1960, Associate Professor*—urban, manufacturing, transportation, planning

Melinda S. Meade, Ph.D., Hawaii, 1974, Assistant Professor—medical, population, Southeast Asia

Vernon G. Meentemeyer, Ph.D., Southern Illinois, 1971, Assistant Professor—physical, climatology, microclimatology

**Clifton W. Pannell, Ph.D., Chicago, 1971, Associate Professor*—East Asia, urban and regional systems, political

**Merle C. Prunty, Ph.D., Clark, 1944, Alumni Foundation Distinguished Professor*—economic, Anglo-America, land utilization and settlement, U.S. South

**James A. Shear, Ph.D., Clark, 1952, Professor*—climatology, meteorology

**Kirk H. Stone, Ph.D., Michigan, 1949, Research Professor*—rural settlement, population, Northern Lands

**Roy A. Welch, Ph.D., Glasgow, 1968, Professor*—remote sensing, photogrammetry, glacial geomorphology

**James O. Wheeler, Ph.D., Indiana, 1966, Professor and Head*—transportation, manufacturing, quantitative

**James F. Woodruff, Ph.D., Michigan, 1952, Professor*—geomorphology, field methods, hydrology

*Members of Graduate Faculty who serve as Ph.D. Advisory Committee Chairmen.

Harvard University

DEPARTMENT OF CITY AND REGIONAL PLANNING, GRADUATE SCHOOL OF DESIGN

DEGREES OFFERED: M.C.R.P.

GRANTED 7/1/76–6/30/77: 110 M.C.R.P.

PH.D. PROGRAM IN URBAN PLANNING, GRADUATE SCHOOL OF ARTS AND SCIENCES

DEGREES OFFERED: Ph.D.

GRANTED 7/1/76–6/30/77: 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 235 Masters 6 Ph.D.

NOT IN RESIDENCE: 12 Masters 14 Ph.D.

CHAIRMEN: John F. Kain, Department of City and Regional Planning; Brian J. L. Berry, Ph.D. Program in Urban Planning

FOR MASTER'S PROGRAM CATALOG AND FURTHER INFORMATION WRITE TO:
Registrar, Graduate School of Design, Harvard University, Gund Hall 409, Cambridge, Massachusetts 02138
Telephone (617) 495-5454

FOR PH.D. PROGRAM CATALOG AND FURTHER INFORMATION WRITE TO:
Admissions Director, Graduate School of Arts and Sciences, Harvard University, Byerly Hall 202, Cambridge, Massachusetts 02138
Telephone (617) 495-5315

PROGRAMS AND RESEARCH FACILITIES: Harvard University offers geographers who seek a professional career in urban and regional policy analysis, planning, and administration the opportunity to enroll in its two-year Master of City and Regional Planning degree program. This program provides comprehensive training for professional practice in the public and private sectors. In addition, those geographers who already hold a Master's degree and seek an academic career may apply to the Ph.D. program in urban planning.

The M.C.R.P. program is structured around a core curriculum that builds a thorough understanding of urban and regional problems, an analytic framework for developing alternative strategies, management skills for implementing policies, and a greater awareness of competing values and ethical principles. Seven required courses, which are closely coordinated, provide the tools, concepts, and techniques: economic analysis for planning; planning process; planning law and administration; urban growth and spatial structure; quantitative methods, 1 and 2; and public finance and budgeting. Students also are required to complete at least one workshop to gain experience in applying their skills to specific problems for actual clients. Finally, in order to develop depth of understanding, sharpen analytic skills, and provide an initial entry point into the job market, students include a substantive policy area of their choice in their

study plans. These specializations consist of a minimum of three courses, and are usually selected from the department's elective offerings, although students may fashion an alternative of their own with the approval of the Department's Committee on Professional Degrees. The specializations available to date are as follows: housing and community development; transportation; environmental quality and land use; regional development; physical design; developing countries; budgeting and management. The City and Regional Planning Department also participates in joint degree programs with other professional schools, such as Law, Business, Public Health, and Education.

The Ph.D. program admits applicants who have already shown evidence of academic work of high quality in urban or regional planning or a closely related field, including geography. A master's degree is required; applicants without such a degree should apply to the M.C.R.P. program for an initial year of study, and then apply for transfer to the doctoral program. In any case, all students in the Ph.D. program are required to have completed, before the general examinations, the substance of the core courses of the Harvard M.C.R.P. degree. Those transferring from the M.C.R.P. program may petition for award of the M.C.R.P. degree upon passing the qualifying exams for the Ph.D. The program of study requires that students prepare for their general examinations in five fields: urban structure and development; methodology or urban planning analysis; planning process and decision-making; a minor discipline (economics, environmental sciences and engineering, government, history, sociology, or psychology and social relations); and a selected policy area (housing and residential development, transportation, environmental resources conservation and development, local finance and administration, or regional development). Upon completing the general examinations, a thesis proposal is submitted. Normally, one year of sustained work is required to complete the thesis.

All Harvard students have available to them the resources of the entire Harvard-Massachusetts Institute of Technology complex, and may freely cross-register in both schools. In addition, there are the research facilities of the Joint Center for Urban Studies, as well as an extraordinary complex of private and public research facilities in Cambridge. Geographers should note that the Graduate School of Design houses the Laboratory for Computer Graphics and Spatial Analysis, and that geography courses are offered in the departments of Anthropology and Sociology as well as in the School of Design.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Harvard University is on a semester system. New graduate students may begin their work only in the Autumn of each year. The catalogs for the M.C.R.P. and the Ph.D. programs spell out the application procedures and timing that apply in each case. Applications must include the appropriate application form, fully completed, official transcripts of academic records, three or more letters of recommendation, and Graduate Record Examination (Aptitude) scores. Note that application procedures for the M.C.R.P. and Ph.D. programs are different, subject to the separate rules of the Graduate School of Design and the Graduate School of Arts and Sciences, respectively. Financial aid is available in limited amounts to those needy students who, with their families, have made conscientious efforts to fund

their own school and living expenses. As a matter of policy, Harvard University does not discriminate among applicants in admissions, educational policies, scholarship and loan programs, and other programs on the basis of race, religion, sex, national origin, or color.

STAFF:

Manual Alter, M.C.P., Harvard, 1973, Senior Lecturer—management of professional public and private planning practices

Brian Berry, Ph.D., Washington, 1958, Williams Professor—urban geography, land use and the environment, urbanization, quantitative analysis, regional planning

Howard Bloom, Ph.D., Harvard, 1976, Assistant Professor—state and local financial issues, demand for local public services, quantitative analysis

H. James Brown, Ph.D., Indiana, 1967, Professor—spatial analysis, land use, modeling, housing

Belden Daniels, L.L.B., Harvard, 1959, Lecturer—community development corporation, financing economic development

Robert Dunlap, Ph.D., Michigan, 1966, Visiting Professor—environmental management and technology

Gary Fauth, Ph.D., Harvard, 1974, Assistant Professor—transportation planning, land use, environmental planning

Tony Gomez-Ibanez, Ph.D., Harvard, 1975, Assistant Professor—transportation, land use, quantitative analysis, public sector productivity, planning process

Avis Gordley, M.C.P., Harvard, 1973, Instructor—urban spatial structure, education planning, moving behavior, planning process

David Harrison, Ph.D., Harvard, 1974, Assistant Professor—environmental planning, land use, energy transportation

Arnold Howitt, Ph.D., Harvard, 1976, Assistant Professor—American urban politics, planning process, organizational behavior, intergovernmental relations

Reginald Isaacs, M.A., Harvard, 1939, Professor—regional planning, developing countries, planning methodologies

John F. Kain, Ph.D., UC, Berkeley, 1961, Professor—transportation, housing, spatial analysis, land use

Martin T. Katzman, Ph.D., Yale, 1966, Associate Professor—regional planning, developing countries, public finance and budgeting

Florence C. Ladd, Ph.D., Rochester, 1958, Associate Professor—environmental psychology, social services

Helen Ladd, Ph.D., Harvard, 1974, Assistant Professor—municipal public finance, property taxation, state tax and expenditure controls on local governments

Clint Oster, M.S., Carnegie Mellon, 1973, Workshop Associate—science and urban public affairs

Michael John Pittas, M.F.A., Princeton, 1967, Lecturer—physical design

Peter Rogers, Ph.D., Harvard, 1961, Professor—environmental planning, quantitative analysis

Robert Schafer, Ph.D., Harvard, 1973, Associate Professor—housing, urban law, land use, spatial analysis, quantitative analysis

Michael Shapiro, Ph.D., Harvard, 1976, Assistant Professor—environmental quality planning, quantitative methods

Carol Thomas, M.A., Connecticut, 1950, Lecturer—land use planning

Edward J. Tomey, B.A., Colby, Lecturer—organizational behavior, written and oral communications, management, interpersonal communications, staff development, manpower programs, mental health

Francois Vigier, Ph.D., Harvard, 1960, Professor—history, physical planning, practice, environmental and economic impact analysis

John McHenry Yinger, Ph.D., Princeton, 1974, Assistant Professor—urban economics, housing economics (especially discrimination in housing), local public finance

ASSOCIATED STAFF:

William Alonso, Ph.D., Pennsylvania, 1959, Professor, Director, Population Center, Richard Saltonstall Professor of Population Policy—urbanization and development

William Doebele, M.C.P., Pennsylvania, 1956, Professor—urban law, administration, implementation, developing countries

Gregory Ingram, Ph.D., Harvard, 1972, Associate Professor—urban economics, air quality, computer models

Maurice Kilbridge, Ph.D., 1953, Dean, Graduate School of Design—urbanization in developing countries

John Meyer, Ph.D., Harvard, 1955, Professor—urban transportation

Lee Rainwater, Ph.D., Chicago, 1954, Professor—stratification, family sociology

Fred Smith, Ph.D., Yale, 1950, Professor—ecology

Carl Steinitz, Ph.D., MIT, 1967, Professor—landscape architecture, urban design

University of Hawaii

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 7 M.A., 4 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**33 M.A.**	**26 Ph.D.**
NOT IN RESIDENCE:	**12 M.A.**	**10 Ph.D.**

CHAIRMAN: Roland J. Fuchs

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Graduate Admissions Committee, Department of Geography, 2424 Maile Way, University of Hawaii, Honolulu, Hawaii 96822
Telephone (808) 948-8465

PROGRAMS AND RESEARCH FACILITIES: In conjunction with other departments and research institutes affiliated with the University of Hawaii, the Geography

Department offers exceptional advantages for studies not only in the Asian and Pacific regions but also on the systematic topics of major importance in tropical areas. Program specializations are offered in: climatology, biogeography, environmental management, agricultural geography, medical geography, cultural geography, population geography, urban and regional systems, cartography and remote sensing, regional geography: East Asia, Southeast Asia, South Asia, Pacific Islands.

The Department is housed in a new Social Science building; departmental quarters provide graduate students with desk space and common facilities. Graduate students also have access to modern cartographic and data processing facilities (IBM 7040-1401 system and IBM 360/65 system). Research on topics of departmental specialization is backed by strong collections in several libraries. These include the University libraries, the Bishop Museum Library, the Hawaiian Sugar Planters' Association Library, and the East-West Population Institute Library.

The M.A. program requires a core program of seminars, 15 credits in the field of specialization, a thesis research paper, and an oral examination.

Ph.D. requirements include a seminar on the history of geographic thought, a 30-credit major and 15-credit minor field of specialization, competence in one language plus an approved sequence of advanced courses in research techniques. The candidate must pass written and oral comprehensive examinations and submit a dissertation which is usually based on field work.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester System. Admission to the M.A. program generally requires a minimum grade point average of B (3.00 on a four-point scale) during the junior and senior years. Admission to the Ph.D. program requires a superior record in graduate work and promise of research ability. Both M.A. and Ph.D. applicants must submit transcripts, GRE results (aptitude tests only), and letters of appraisal from three faculty members. Available financial aids include teaching assistantships with stipends beginning at $4512 with remission of tuition, research assistantships, tuition remission awards, and NDEA (title VI) fellowships. In addition, attention is called to East-West Center Scholarships which are available to Americans studying Asian or Pacific topics, as well as students from Asian or Pacific countries. The grants include travel to and from Hawaii, tuition, books, food, lodging and a personal allowance. If academic requirements have been met, American students are eligible for a research period in the Asian or Pacific region. The deadline for application for assistantships is March 1 and for East-West Center Scholarships, December 1.

STAFF:

R. Warwick Armstrong, Ph.D., Illinois, 1963, Professor—public health and human ecology, medical geography

Jen-hu Chang, Ph.D., Clark, 1954, Professor—climatology, agriculture, China

Sen-dou Chang, Ph.D., Washington, 1961, Professor—China, cartography

Murray Chapman, Ph.D., Washington, 1970, Associate Professor—population (mobility), field methods, Melanesia

Willard T. Chow, Ph.D., UC, Berkeley, 1974, Assistant Professor—urban, social

Donald W. Fryer, Ph.D., London, 1958, Professor—economic development, Southeast Asia

Ronald J. Fuchs, Ph.D., Clark, 1959, Professor—urbanization and population distribution policies, regional development, U.S.S.R.

Gary A. Fuller, Ph.D., Pennsylvania State, 1972, Associate Professor—population (fertility, policy aspects, diffusion), geography of prophylaxis

David H. Kornhauser, Ph.D., Michigan, 1956, Professor—urbanization and impact of technological change, Japan

Brian J. Murton, Ph.D., Minnesota, 1970, Associate Professor—folk-historical geography, peasant agrarian societies, tropical agriculture, South Asia

Peter N.D. Pirie, Ph.D., Australian National, 1964, Professor—population resource interrelations and management, Pacific

Forrest R. Pitts, Ph.D., Michigan, 1955, Professor—social, cultural, computer applications, Korea and Japan

Allan R. Sommarstrom, Ph.D., Washington, 1970, Associate Professor—environmental quality, conservation, recreation

John M. Street, Ph.D., UC, Berkeley, 1960, Professor—tropical biogeography and agricultural geography, modification of biosphere

Lyndon L. Wester, Ph.D., UCLA, 1975, Assistant Professor—plant geography, Quaternary geography, man-plant relationships

Everett A. Wingert, Ph.D., Washington, 1973, Associate Professor—cartography, remote sensing

AFFILIATE GRADUATE FACULTY:

Kenneth Ruddle, Ph.D., UCLA, 1970—cultural, resources, development

Paul J. Schwind, Ph.D., Chicago, 1970—urban and regional systems analysis and planning

VISITING FACULTY, 1977-78:

Bryce G. Decker, Ph.D., UC, Berkeley, 1970—biogeography, Pacific

John H. Sorensen, Ph.D., Colorado, 1977—environmental and resource management, natural and man-induced hazards

Andrew N. White, Ph.D., Pennsylvania, 1976—urban analysis, health care delivery services and public facility location

University of Idaho

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S., M.A.T.

GRANTED 7/1/76–6/30/77: 5

GRADUATE STUDENTS IN RESIDENCE: 29

HEAD: Sam M. W. Scripter

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor Nancy B. Hultquist, Department of Geography, University of Idaho, Moscow, Idaho 83843 Telephone (208) 885-7097 or 885-6216

PROGRAMS AND RESEARCH FACILITIES: M.S. is a 30-semester-credit program including both thesis and non-thesis options. No language requirement. Field work optional. Non-thesis option requires final examination. Individual programs designed for specific student needs and for maximum flexibility.

M.A.T. is a 30-semester-credit non-thesis program with two options. If B.A. or B.S. degree is in geography, then M.A.T. is taken in Department of Education; if B.A. or B.S. in Education, then M.A.T. taken in Geography. No language requirement. Final examination required.

Non-thesis programs available through summer-only attendance in addition to the academic year plan.

Department emphasis is upon Regional and Small Town Planning, Spatial and Environmental Issues, Spatial Techniques, and Cartography, with courses in systematic and analytical perspectives rather than descriptive and regional. Facilities include a new cartographic production laboratory, Numonics 1224 graphics calculator and digitizer, microcomputer with color graphics, and I.B.M. 370/145 computer with 36" Calcomp plotter available for student use in computer mapping and other spatially analytic applications.

Practicums and internships available whereby selected students may earn academic credit and gain practical experience in applied geography within Cartographics Laboratory, and with government agencies.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: (Semester System). Admission requires minimum grade point of 2.4 and overall indication of success. Three letters of recommendation required from professors and/or job supervisors evaluating applicant's ability to pursue graduate studies. Transcripts of all academic experience required. General Graduate Record Examination required for entrance to both M.S. and M.A.T. programs. Undergraduate program need not be in geography. Some part-time teaching assistantships in physical geography, economic geography, and cartography; occasional additional research awards connected with projects of contract research.

FACULTY:

Harry H. Caldwell, Ph.D., Clark, 1951, Professor—political, recreation, Asia, planning

Richard L. Day, Ph.D., Illinois, 1959, Associate Professor—weather and climate, United States and Canada, Pacific Northwest, rail passenger transportation (on leave, Fall 1977)

Alan A. DeLucia, Ph.D., Washington, 1974, Assistant Professor—cartography, air photo interpretation and remote sensing

John F. Hultquist, Ph.D., Iowa, 1972, Associate Professor—urban and regional problems, planning, values and behavior in relation to the spatial organization of society, quantitative methods (one-half time)

Nancy B. Hultquist, Ph.D. in progress, Iowa, Assistant Professor—urban studies, man-environment interaction, quantitative and computer methods (one-half time)

O. Paul Matthews, J.D., Idaho, 1975, Ph.D. in progress, Washington, Assistant Professor—legal aspects of land and resource regulation, mineral law and mining regulation, political (three-fourths time)

Sam M. W. Scripter, Ph.D., Wisconsin, 1967, Professor and Head—transportation, computer applications, local and regional planning, geographical information systems

ADJUNCT FACULTY:

William B. Hall, Ph.D., Wyoming, 1961, Professor of Geology—geomorphology, remote sensing and air photo interpretation

Herbert J. Vent, Ed.D., Stanford, 1949, Professor of Education—teaching methods for geography, regional geography, Latin America

Illinois State University

DEPARTMENT OF GEOGRAPHY-GEOLOGY

DEGREES OFFERED: M.A., M.S., M.S. in Ed.

GRANTED 7/1/76–6/30/77: 4

GRADUATE STUDENTS IN RESIDENCE: 8

NOT IN RESIDENCE: 10

CHAIRMAN: John E. Trotter

FOR CATALOG AND FURTHER INFORMATION WRITE TO: John E. Trotter, Department of Geography-Geology, Illinois State University, Normal, Illinois 61761
Telephone (309) 436-7649

PROGRAMS AND RESEARCH FACILITIES: The master's program in geography is intended to accomplish two purposes: (1) enhance the student's general background of geographic knowledge and understanding, and (2) provide basic research and writing skills. The second aim is accomplished through courses in geographic thought and methodology, quantitative methods, field techniques, library research techniques, cartography, and aerial photograph interpretation. Some degree of specialization can be developed in courses.

The department offers opportunities for specialization or emphasis in physical, urban, economic, resource, and cultural geography. Regional emphases are possible.

Departmental facilities include a cartographic laboratory and a dark room. Milner Library presently contains approximately 547,000 volumes, not including

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government documents and micro-filmed publications. The library currently receives over 100 geographical serials. The map library contains over 180,000 maps and 35,000 aerial photographs. Computer services are available to graduate students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Illinois State University admits persons to master's degree programs on the basis of academic record and other criteria. All students seeking admission to master's degree program in geography must submit scores on the Aptitude Test and the Advanced Test in Geography of the Graduate Record Examination.

Graduate assistantships and various loans and scholarships are available to qualified students. Illinois State University operates on a semester system.

STAFF:

George Aspbury, Ph.D., Michigan, 1975, Assistant Professor—cultural, Spain, Mediterranean, quantitative/ theoretical investigation of settlements

Wesley C. Calef, Ph.D., Chicago, 1948, Professor*—land use, physical, rural

Eric S. Johnson, Ph.D., Kansas, 1968, Assistant Professor—economic-political, Latin America

Paul F. Mattingly, Ph.D., Pennsylvania State, 1961, Associate Professor*—economics of land utilization, recreation, Africa

E. Joan Miller, Ph.D., North Carolina, 1965, Associate Professor*—cultural geography, Northwestern Europe, United States

James E. Patterson, Ph.D., Illinois, 1958, Professor*—economic, United States, Latin America

Else T. A. Schmidt, Ph.D., Munich, Germany, 1959, Associate Professor*—geomorphology, Europe, Africa and Middle East

Stanley B. Shuman, Ph.D., Illinois, 1957, Professor*—climatology, Australia-New Zealand

Michael D. Sublett, Ph.D., Chicago, 1974, Assistant Professor—economic, agricultural, Anglo-America, historical geography of the U.S.

John E. Trotter, Ph.D., Chicago, 1962, Professor and Chairman*—resource and recreational, climatology, East and Southeast Asia

William D. Walters, Jr., Ph.D., Indiana, 1974, Assistant Professor—historical, cultural, political

*Graduate Faculty

University of Illinois

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., M.S.T., Ph.D.

GRANTED 7/1/76–6/30/77: 8 Masters, 7 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 16 Masters 25 Ph.D.

NOT IN RESIDENCE: 0 Masters 9 Ph.D.

HEAD: Arthur Getis

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor Arthur Getis, Head, Department of Geography, University of Illinois, Urbana, Illinois 61801 Telephone (217) 333-1881

PROGRAMS AND RESEARCH FACILITIES: The Department's offerings are most comprehensive in aspects of economic and physical geography, in research methods, and in historical and social geography. Inter-disciplinary specialization is fostered in ecology, biometerology, and resource utilization, and in all fields allied to economic geography. Opportunities for regional specialization are excellent. In the African, Asian, Latin American and Russian studies areas the richness of opportunities for specialization is suggested by the existence of federally supported NDEA fellowships.

Departmental facilities include a Spatial Data Analysis Laboratory as well as cartographic and soils laboratories. Other research facilities available include the excellent Map and Geography Library (275,000 flat maps and 111,000 aerial photographs; some 15,000 books, monographs, serials and atlases in open stacks), the superb main library (holdings of 5,000,000 volumes), and several computer systems (CYBER 175 and the large-scale, highly parallel digital system of Illiac IV). Ample opportunity exists for specialization in related fields, there being nearly 100 departments and the Illinois State Water Survey, Geological Survey, Natural History Survey, Illinois Historical Survey, Bureau of Urban and Regional Planning Research, Institute of Communications Research and Institute for Environmental Studies at Urbana.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester System. Admission: "B" average for Masters; "B+" average for Ph.D. Fellowships, teaching and research assistantships, and tuition waivers are available for qualified graduate students. Additional support is available to assistants and fellows for summer work, and students may compete for assistance on travel and research costs related to the dissertation.

STAFF:

Charles S. Alexander, Ph.D., UC, Berkeley, 1955—geomorphology, ecology, field methods, Middle America, East Africa

James A. Bier, M.S., Illinois, 1955—cartography, physiography

Marilyn A. Brown, Ph.D., Ohio State, 1977—urban, quantitative methods
Stanley Changnon, M.S., Illinois, 1956—meteorology, climatology
David A. Cobb, M.A. (Geog.), Vermont, 1970, M.S. (Lib. Sci.), Indiana, 1973—Map and Geography Librarian
J. Ronald Eyton, Ph.D., Illinois, 1975—remote sensing, photo interpretation, quantitative
Jerome D. Fellmann, Ph.D., Chicago, 1950—urban, historical, bibliographic techniques, U.S.S.R.
Arthur Getis, Ph.D., Washington, 1961—quantitative methods, systematic human geography, pattern analysis
Geoffrey J. D. Hewings, Ph.D., Washington, 1969—transportation, regional development, quantitative
John A. Jakle, Ph.D., Indiana, 1967—historical, landscape analysis, perception of environment, social
Donald L. Johnson, Ph.D., Kansas, 1972—geomorphology, zoogeography, soils, paleoecology
William P. Lowry, Ph.D., Oregon State, 1962—meteorology, climatology, planning
Janice J. Monk, Ph.D., Illinois, 1971—educational, cultural, historical, Anglo-America, Australia
John V. O'Loughlin, Ph.D., Pennsylvania State, 1973—urban, political, social, quantitative, Europe
Howard G. Roepke, Ph.D., Northwestern, 1953—industrial location, manufacturing, minerals, economic development, resource management
Curtis C. Roseman, Ph.D., Iowa, 1969—social, migration, quantitative
Demitri B. Shimkin, Ph.D., UC, Berkeley, 1939—cultural, human ecology, U.S.S.R.
John Thompson, Ph.D., Stanford, 1958—cultural, historical, Latin America
Wayne M. Wendland, Ph.D., Wisconsin, 1972—climatology, meteorology, paleoclimatology, environmental science
Donald L. Williams, Ph.D., Kansas, 1976—biogeography, conservation, photo interpretation, remote sensing

Indiana State University

DEPARTMENT OF GEOGRAPHY AND GEOLOGY

DEGREES OFFERED: M.A. in Geography, M.A. in Earth Science, Ph.D. in Geography. Minors are available in appropriate number of fields.

GRANTED 7/1/76–6/30/77: 15 M.A., 7 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 27 Masters 12 Ph.D.

NOT IN RESIDENCE: 15 Masters 6 Ph.D.

CHAIRMAN: Benjamin Moulton

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Benjamin Moulton, Chairman, Department of Geography and Geology, Indiana State University, Terre Haute, Indiana 47809
Telephone (812) 232-6311, ext. 2444 and 2445

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography and Geology is housed in contemporary quarters completed in January 1968. The facilities are excellent with space for research and laboratories. A staff cartographer is available. There are at present a map library, cartography laboratories, dark rooms, quantitative laboratory, graduate office space and preparation rooms. The department owns a bank of electronic calculators. For field work and research, three Microbuses are available. An experiment station 16 miles away is suitable for soils study, mapping and field laboratory

The University Library has a science library in the same building that houses the Department of Geography and Geology. The University acts as a depository for the Superintendent of Public Documents. The map library contains 160,000 maps and a growing aerial photo collection. Two computers and a horizontal plotter are available for research through the Computer Center.

The department has available photo interpretation equipment, including a Kelsh plotter, and has access to training and computer digitizing of multi-spectral remote sensing observations.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates on the semester system and has an active summer program of 10 weeks. Students requesting admission must complete application papers. All students must take the Graduate Record Examination. Transcripts and letters of reference must be submitted. Assistantships and Fellowships are available. The amount would depend upon qualifications. Holders of financial assistantships are exempted from tuition charges.

STAFF:

Donald W. Ash, Ph.D. candidate, SUNY Binghamton, Assistant Professor—hydrology, geomorphology

Byron K. Barton, Ph.D., Nebraska, 1949, Professor—regional, research geography

Robert W. Bastian, Ph.D., Indiana, 1968, Associate Professor—historical

William D. Brooks, Ed.D., Indiana, 1969, Associate Professor—physical, cartography

Adelord J. Cantin, M.A., Iowa, 1957, Assistant Professor—physical

John H. Cleveland, Ph.D., Indiana, 1962, Professor—economic geology, petrology

Robert R. Drummond, Ph.D., Northwestern, 1953, Professor—urban, geomorphology

James L. Guernsey, Ph.D., Northwestern, 1957, Professor—land use, Latin America

John C. Hook, Ph.D., Iowa, 1956, Professor—physical, astronomy

Robert Howe, Ph.D., Wisconsin, 1965, Professor—paleontology

Lois Latta, Ph.D., Illinois, 1959, Associate Professor—physical, Anglo-America

Paul Mausel, Ph.D., North Carolina, 1966, Professor—soils, agriculture, remote sensing

John R. McGregor, Ph.D., Illinois, 1965, Professor—economic, manufacturing
Victor C. Miller, Ph.D., Columbia, 1953, Professor—geomorphology, photo interpretation
Benjamin Moulton, Ph.D., Indiana, 1950, Professor and Chairman—field geography, Anglo-America
John E. Oliver, Ph.D., Columbia, 1969, Professor—climatology, physical
Donald E. Owen, Ph.D., Wisconsin, 1963, Associate Professor—paleontology
Akhtar Siddiqi, Ph.D., London, 1964, Professor—Asia, economic
Samuel W. Smith, Ph.D., Iowa, 1962, Associate Professor—climatology, Africa

Indiana University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A.T., Ph.D.

GRANTED 7/1/76–6/30/77: 7 M.A., 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**22 M.A.**	**1 M.A.T.**	**16 Ph.D.**
NOT IN RESIDENCE:			**8 Ph.D.**

CHAIRMAN: Robert N. Taaffe

FOR CATALOG AND FURTHER INFORMATION WRITE TO: John J. Odland, Director of Graduate Admissions, Department of Geography, Indiana University, Bloomington, Indiana 47401

PROGRAMS AND RESEARCH FACILITIES: The M.A. and Ph.D. programs of the Geography Department are research-oriented degree programs in the science of geography. Courses in advanced quantitative methods in geography, research design, geographic theory, and models in geography constitute the core of study for both degrees and emphasize the scientific orientation of the Department.

Requirements for the M.A. degree: (1) completion of the core courses noted above; (2) completion of a Master's thesis or two research papers and 30 hours credit; (3) reading knowledge of a foreign language or competence in a research skill; (4) completion of a comprehensive examination covering the core courses and the student's research.

The Ph.D. degree involves (1) competence in one foreign language in depth; or, reading knowledge of one foreign language and one other research skill, e.g., computer science, mathematics, statistics, operations research; or, either one research skill in depth or two research skills; (2) completion of an oral and written exam covering the student's major area of specialization within the department and his minor in a related department; and (3) completion of a Ph.D. dissertation.

The M.A.T. degree provides the skills and basic geographical knowledge necessary for teaching geography in secondary schools or junior colleges. Requirements for the M.A.T. degree are 36 credits, of which 30 must be graduate credit; no thesis is required. The student can continue his studies by working for the Ed.D. degree in the School of Education.

Research facilities include the Geography and Map Branch Library which

contains more than 125,000 sheet maps, 10,000 aerial photos and several hundred atlases; cartographic, photogrammetric, and photographic equipment; and the Research Computing Center, which houses a CDC 6600 Computer system. The department contains a quantitative research laboratory with a terminal to the Computing Center, a Wang 2200B system, a CRT Plotter and Typewriter, and a Stacor digitizer.

The Department works very closely with several other divisions of the University including the School of Public and Environmental Affairs, the Water Resources Research Center and the Russian and East European Institute.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University is on the semester system. Admission to the M.A. program requires an undergraduate major in geography or its equivalent. The Ph.D. program requires an M.A. in geography from Indiana or its equivalent. Academic year financial awards include NDEA, Title IV; National Science Foundation Fellowships; University Fellowships; graduate/teaching assistantships ($3300 and over for 10 months). The Department also awards a fairly large number of Departmental Fee Remission Awards which will pay all fees up to 12 hours credit, except for allocated fees which are currently $78 per semester. For an out-of-state student, the combined assistantship and fee-remission represents an award of over $4500. Assistants may carry up to 12 hours of graduate credit per semester and are expected to work 20 hours per week for the Department. Also available are Graduate Fee Remission Scholarships, Dissertation Year Fellowships ($2000 to $3600), and Doctoral Student Grant-in-Aid awards. Applications for the 1978-79 academic year should be received by March 1, 1978. Notification of awards will be made by April 1.

STAFF:

Alan L. Backler, Ph.D., Michigan, 1971, Assistant Professor—cultural, social problems, geographic education

Thomas F. Barton, Ph.D., Nebraska, 1935, Professor Emeritus—urban, conservation, Southeast Asia

Don C. Bennett, Ph.D., Syracuse, 1957, Associate Professor—cultural, urban, Southeast Asia

William R. Black, Ph.D., Iowa, 1969, Professor and Director, Center for Urban and Regional Analysis—economic, transportation, quantitative methods

Dennis Conway, Ph.D., Texas, 1976, Assistant Professor—migration, urban

Jerry M. Davis, Ph.D., Ohio State, 1971, Assistant Professor—climatology, meteorology

John J. Hidore, Ph.D., Iowa, 1960, Professor—physical, fluvial, hydrology, climatology

John M. Hollingsworth, M.S., Indiana, 1970, Lecturer and Departmental Cartographer

John F. Jakubs, Ph.D., Ohio State, 1974, Assistant Professor—urban, spatial behavior, quantitative methods

Robert C. Kingsbury, A. M., Kansas, 1951, Associate Professor—cartography, aerial photography, South Asia

David B. MacKay, Ph.D., Northwestern, 1971, Associate Professor of Marketing and Geography—spatial consumer behavior, cognitive mapping

Theodore K. Miller, Ph.D., Northwestern, 1971, Associate Professor and Associate Director, Center for Urban and Regional Analysis—urban, fluvial, quantitative

John J. Odland, Ph.D., Ohio State, 1972, Assistant Professor—urban, quantitative methods, mathematical models

Lawrence Onesti, Ph.D., Wisconsin, 1973, Associate Professor—fluvial geomorphology

Norman J. G. Pounds, Ph.D., London, 1944, University Professor Emeritus of Geography and History—history, political, Eastern Europe

Daniel Seldin, M.L.S., Maryland, 1973, Geography and Map Librarian

Robert N. Taaffe, Ph.D., Chicago, 1959, Professer—economic, transportation, urban, U.S.S.R. and Eastern Europe

Ernest H. Wohlenberg, Ph.D., Washington, 1970, Associate Professor—economic, natural resources, economic development

ASSOCIATED PROFESSORS IN OTHER DEPARTMENTS:

James H. Kellar, Ph.D., Indiana, 1956, Professor of Anthropology and Director, Glenn Black Laboratory of Archeology—ethnography, archeology

David F. Parkhurst, Ph.D., Wisconsin, 1970, Assistant Professor, Public and Environmental Affairs—plant geography

James C. Randolph, Ph.D., Carleton, 1972, Assistant Professor, Public and Environmental Affairs—zoology-ecology

George M. Smerk, D.B.A., Indiana, 1963, Professor of Transportation—urban transportation

Indiana University of Pennsylvania

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING

DEGREES OFFERED: M.A., M.S., M.Ed.

CHAIRPERSON: Ruth I. Shirey

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Director of Graduate Studies, Department of Geography and Regional Planning, Indiana University of Pennsylvania, Indiana, Pennsylvania 15701

PROGRAMS AND RESEARCH FACILITIES: M.A., M.S., and M.Ed. degrees with or without thesis. Degree programs are specifically designed for further graduate study or professional application.

Thirty semester hours must be completed in the following divisions: subject matter concentration 16-25; related studies 6-10; research 0-4. Students may develop concentrations in Human/Economic, Physical Geography, and Regional

Planning. If student elects non-thesis option, 36 semester hours of course work must be completed.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Applicants must have Bachelor's degree with 2.6 QPA, satisfactory score on GRE, and satisfactory recommendations.

Graduate assistantships available. Full-time students interested in appointments for the academic year should request applications from the Dean of the Graduate School prior to March 1. Appointments are made by the Chairperson of the Department, with the approval of the Graduate School.

STAFF:

Donald J. Balla, Ph.D., Nebraska, Professor—cultural, Africa
Jack V. Chambers, Ph.D., Bristol, Associate Professor—climate
Thomas G. Gault, Ed.D., George Peabody, Professor—Anglo-America
Noland R. Heiden, A.I.P., Ph.D., Michigan, Associate Professor—planning
Gopal S. Kulkarni, Ph.D., Pittsburgh, Professor—urban, marketing, Asia
Vincent P. Miller, Ph.D., Michigan State, Professor—political, Europe
James E. Payne, M.A., North Carolina, Associate Professor—cartography, map and photo interpretation
Ruth Shirey, Ph.D., Tennessee, Associate Professor—Latin America
Leonard P. Tepper, Ph.D., Pittsburgh, Associate Professor—research methods, population
Charles E. Weber, Ed.D., Columbia, Professor—conservation, Asia, land use
David C. Winslow, Ph.D., Clark, Professor—urban, economic
Susan Wood, M.A., Kent State, Associate Professor—geographic education
Maurice M. Zacur, Ed.D., Pennsylvania State, Professor—geographic education
Norah E. Zink, Ph.D., Chicago, Professor Emeritus
Mamie L. Anderzhon, M.A., Chicago, Professor Emeritus

The University of Iowa

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 7 M.A., 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**7 M.A.**	**34 Ph.D.**
NOT IN RESIDENCE:	**0 M.A.**	**10 Ph.D.**

CHAIRMAN: James B. Lindberg

FOR ADDITIONAL INFORMATION WRITE TO: Chairman, Department of Geography, The University of Iowa, Iowa City, Iowa 52242
Telephone (319) 353-3131

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography offers both Master of Arts degree and the Doctorate in geography. In both programs it is expected that students will be introduced to concepts, generalizations, models, and theories related to the locational analysis of physical, economic, social and political phenomena; the spatial aspects of human behavior; the development of Third World countries; and the interaction of man and his environment. Those who plan college teaching careers are given opportunity for training and experience so that they might better perform their role as classroom instructors.

An applied Masters Program has been designed to provide special training for students interested in professional careers. Graduates of the program are prepared for positions with private firms or governmental agencies involved in market analysis, urban and transportation analysis, land development, environmental impact studies, resource evaluation, and related areas.

The faculty strives to maintain an atmosphere in which each student can attain not only the intellectual rigor growing out of close student-faculty research interests, but also the excitement of truly independent creativity. Graduate and undergraduate students participate in the administration of all departmental affairs.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: In determining the admission of a student to its graduate program, the department considers the total record of each student individually, including:

(1) the undergraduate grade point average, especially during the junior-senior years (admitted on condition if GPA is below 2.75);

(2) scores on the Graduate Record Examination Aptitude Test (applicants for assistantships must submit GRE scores of 1100 on verbal and quantitative examinations combined);

(3) at least three letters of recommendation;

(4) an essay in which the applicant sets forth the reasons for wanting to continue the study of geography at the University of Iowa.

Regular departmental Teaching and Research Assistantships carry stipends upwards from $4450 for the two semester academic year. A few of these appointments carry supplemental tuition grants of varying amounts. Also available are a limited number of Teaching and Research Fellowships which provide stipends of $5000 for year-round support, plus full tuition scholarships for up to four years. Funded projects also provide for research assistants.

The 1977-78 tuition rate for in-state graduate students is $858 for the academic year. Out-of-state students pay $1810. All teaching and research assistants are charged at in-state rates.

STAFF:

Kenneth J. Dueker, Ph.D., Washington, 1967, Professor—geographic information systems, urban transportation

William L. Graf, Ph.D., Wisconsin, 1974, Assistant Professor—man/environment, fluvial, arid lands, and alpine geomorphology

Rex Honey, Ph.D., Minnesota, 1972, Assistant Professor—urban political geography, spatial aspects of political and social processes in cities, spatial problems in jurisdictional change

Clyde F. Kohn, Ph.D., Michigan, 1940, Professor—social geography, teaching of geography, world geography

Konstantinos Koutsopoulos, Ph.D., Colorado, 1975, Assistant Professor—urban and transportation analysis

James B. Lindberg, Ph.D., Wisconsin, 1963, Professor—industrial location, energy resources and use, college teaching

Michael L. McNulty, Ph.D., Northwestern, 1966, Professor—geographic perspectives on development, urban, Africa

David R. Reynolds, Ph.D., Northwestern, 1966, Professor—location theory and collective decision-making, behavioral analysis (on leave, fall semester 1977)

Gerard Rushton, Ph.D., Iowa, 1964, Professor—location theory, behavioral geography, regional planning, India (on leave, 1977-78)

Neil E. Salisbury, Ph.D., Minnesota, 1957, Professor—natural resources and resource use patterns, fluvial morphology and landscape systems

The Johns Hopkins University

DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL ENGINEERING

DEGREES OFFERED: M.A., M.S.E., Ph.D.

GRANTED 7/1/76–6/30/77: 3 Masters, 5 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 48

CHAIRMAN: M. Gordon Wolman

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor M. Gordon Wolman, Department of Geography and Environmental Engineering, The Johns Hopkins University, Baltimore, Maryland 21218
Telephone (301) 338-7090

PROGRAMS AND RESEARCH FACILITIES: Program objectives include the study of (1) the natural processes of land, air, and water including underlying physical, chemical and biological principles, (2) the relationship between man as an individual and as a member of social groups to his natural and social environment; and (3) systems analysis and economics for public decision making. Specific grad-

uate programs are tailormade and designed to permit each student to focus upon topics of interest and to develop competence in fundamental skills essential to research in his chosen field and problem area. In pursuit of these objectives students are expected to pursue work beyond the confines of the Department. Areas of special strength are: a) surficial earth processes of geomorphology, plant geography, soils, and hydrology; b) environmental biology including aquatic biology, ecology and population dynamics; c) human spatial location, with emphasis on behavioral models, perception of the natural and social environment, models of urban population dynamics, and regional science; d) engineering science and technology with emphasis on sanitary engineering systems analysis, and physical and chemical processes in the environment.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester System. *Admission requirements:* interests in the field coincident with those of the Department, and evidence of competence to pursue graduate work at the M.A. or Ph.D. level; *Financial Aid:* fellowships, stipends, research support including Federal programs available.

STAFF:

Dr. John Boland, Associate Professor—environmental engineering
Dr. Lucien Brush, Professor—sediment transport
Dr. John Cady, Lecturer—soil science
Dr. Charles Chamberlin, Assistant Professor—sanitary engineering
Dr. Jared Cohon, Assistant Professor—environmental systems
Dr. Jack Fisher, Professor—urban studies
Dr. Jerome Gavis, Associate Professor—chemical engineering
Dr. Steve Hanke, Professor—resource economics
Dr. David Harvey, Professor—behavioral geography
Dr. Cornelius W. Kruse, Professor—public health engineering
Dr. T. R. Lakshmanan, Visiting Professor—urban geography and urban-environmental systems
Dr. Charles ReVelle, Professor—systems analysis
Mr. Melvin E. Scheidt, Lecturer—water resources
Dr. Richard Weissbrod, Visiting Professor—transportation geography
Dr. M. Gordon Wolman, Professor—geomorphologic processes

Kansas State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 5

GRADUATE STUDENTS IN RESIDENCE: 17

NOT IN RESIDENCE: 2

HEAD: William R. Siddall

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor David E. Kromm, Department of Geography, Kansas State University, Manhattan, Kansas 66506
Telephone (913) 532-6727

PROGRAMS AND RESEARCH FACILITIES: Advanced work consisting of classes and seminars is offered as part of the Master of Arts curriculum. Close supervision of the thesis research, and frequent visits by geographers from other universities, help to provide a thorough and well-balanced program. The moderate size of the Geography Department makes possible an informal atmosphere and a close rapport between faculty and graduate students.

A cartographic laboratory, photographic reproduction equipment, a collection of topographical maps for research purposes, and a reference library are all contained within the Department. The University library, with its large collection of geographical journals and the complete American Geographical Society research catalog, is nearby.

Other parts of the University offer opportunities for enrichment of the graduate student's program. Advanced study is possible in such areas as economic regional analysis, regional and community planning, transportation engineering, agriculture, and the South Asia Center.

The attractive university campus, rolling and tree-shaded, is located in Manhattan, a town with a population of 30,000. Just to the north of the town is the 25-square-mile Tuttle Creek reservoir and an attractive area of the Flint Hills that was considered by the Interior Department for a new national park.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates on a semester system. Admission to the Graduate School ordinarily requires a "B" average in the junior and senior years plus three letters of recommendation. In some cases applicants with less than a "B" average may be admitted on a provisional basis. Six graduate teaching assistantships are available.

STAFF:

Charles Bussing, Ph.D. Nebraska, 1968, Assistant Professor—cultural, agricultural, Latin America

David E. Kromm, Ph.D., Michigan State, 1967, Professor—resource management, environmental behavior, Eastern Europe, environmental education

Huber Self, M.S., Oklahoma State, 1947, Associate Professor—physical, cartography, Kansas

H. L. Seyler, Ph.D., Indiana, 1971, Assistant Professor—economic-urban, regional development, quantitative methods

William R. Siddall, Ph.D., Washington, 1959, Professor—transportation, environmental quality, Anglo-America

Stephen L. Stover, Ph.D., Wisconsin, 1960, Associate Professor—agricultural, historical, Oceania

Stephen E. White, Ph.D., Kentucky, 1974, Assistant Professor—population and migration, environmental perception, transportation

University of Kansas

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 5 M.A., 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 39 M.A. 13 Ph.D.

NOT IN RESIDENCE: 5 M.A. 18 Ph.D.

CHAIRMAN: Glen A. Marotz

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Advisor, Department of Geography, University of Kansas, Lawrence, Kansas 66045 Telephone (913) 864-4276

PROGRAMS AND RESEARCH FACILITIES: Departmental options for graduate programs emphasize systematic fields and selected regional coverage. Physical geography is well represented particularly in soils, geomorphology (supplemented by work in geology), plant geography, and climatology, (especially agro-climatology and water resources). Well-equippped soils and climatological laboratories are available for research. Photo-analysis and remote sensing facilities are housed in the Center for Research in Engineering Sciences. Within the broad scope of human and economic geography specialization is encouraged in urban, transportation, industrial, and political geography. Cartography retains an important position as a field of emphasis as well as a supplement to work in other facets of geography. A similar role is played by the sequence of courses and seminars on quantitative methods as applied to the various fields of geography and cartography. Research and teaching are supported by well-equipped computational and cartographic laboratories and access to the University's GE 625 computer, and the Department's graphics terminal facilities.

In regard to regional emphasis outside of North America, the department is strongest in terms of staff numbers and field experience in Latin America, Europe-U.S.S.R., East and Southeast Asia. Opportunities for regional competence in geography are enhanced by well-developed interdisciplinary language and area programs for East Asia, Latin America, and Eastern Europe-U.S.S.R.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Admission to graduate standing requires basic courses in physical, cultural, economic, quantitative methods, cartography and a regional course. GRE scores are required. The University follows the two-semester system with fifteen credit hours as the usual load. Half-time assistants are limited to ten hours of class work. Thesis hours, directed readings, and some course work are offered during an eight-week summer session.

The M.A. requirement is for thirty hours of graduate-level work, including the thesis. Two seminars and distribution requirements are designed to provide a core of training in regional, systematic fields, and skills. These are supplemented by courses in the student's area of interest.

A greater degree of specialization is expected for the Ph.D. Sixty hours beyond the M.A. are required, including twenty to thirty hours of work on the dissertation. Various options are available for the language requirement, including reading knowledge of one foreign language and proficiency in a research skill related to the candidate's area of specialization.

Over three-fourths of the graduate students receive some financial support. Teaching and research assistantships within the Department, the Center for Research in Engineering Science, and the Institute for Social and Environmental Studies constitute the major source of aid; some funds are available for the summer period. Other sources of support include Graduate School Honors Fellowships, Dissertation Fellowships, and the several categories of grants from the Office of Education, National Science Foundation, etc.

STAFF:

Robert T. Aangeenbrug, Ph.D., Wisconsin, 1965, Associate Professor—transportation, economic, urban planning and computer graphics, Western Europe

John P. Augelli, Ph.D., Harvard, 1951, Professor—Latin America, political, settlement

Norman T. Carpenter, A.B., Dartmouth, 1961, Director, Cartography Laboratory—cartographic design and production

John C. Davis, Ph.D., Wyoming, 1967, Adjunct Professor—statistical methods, computer graphics

Leslie Dienes, Ph.D., Chicago, 1968, Associate Professor—industrial, economic, Eastern Europe and the Soviet Union (on leave, 1976–77)

Joe R. Eagleman, Ph.D., Missouri, 1963, Professor—meteorology, climatology, water and energy budgets, microclimatology

George F. Jenks, Ph.D., Syracuse, 1950, Professor—cartography, computer application to map symbolization, conservation

Prentice L. Knight III, Ph.D., Illinois, 1977, Assistant Professor—economic, industrial, quantitative methods

Walter M. Kollmorgen, Ph.D., Columbia, 1940, Emeritus Professor of Geography

A. William Kuchler, Ph.D., Munich, 1935, Professor—plant geography, vegetation mapping, Western Europe

Glen A. Marotz, Ph.D., Illinois, 1971, Associate Professor and Chairman—climatology, physical, field methods

George F. McCleary, Jr., Ph.D., Wisconsin, 1969, Associate Professor—map making and cartography

Robert W. McColl, Ph.D., Washington, 1964, Associate Professor—political, traditional societies in transition, China and Southeast Asia

Robert E. Nunley, Ph.D., Michigan, 1958, Professor—population, quantitative methodology, Middle America

James Shortridge, Ph.D., Kansas, 1972, Associate Professor—agricultural, North America, historical

Thomas R. Smith, Ph.D., Columbia, 1943, Professor—economic, historical cartography, East Asia

Curtis J. Sorenson, Ph.D., Wisconsin, 1973, Assistant Professor—soils, physical, photo interpretation, field methods

Robert F. Wiseman, Ph.D., Illinois, 1973, Associate Professor—economic, transport, quantitative methods

Kent State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 4 M.A., 4 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**18 Masters**	**14 Ph.D.**
NOT IN RESIDENCE:	**22 Masters**	**9 Ph.D.**

CHAIRMAN: Surinder M. Bhardwaj

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Bart J. Epstein, Graduate Program Coordinator, Department of Geography, Kent State University, Kent, Ohio 44242
Telephone (216) 672-2045

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography offers graduate programs of study leading to the Master of Arts and the Doctor of Philosophy degrees. Individual programs are planned with the faculty advisor.

Research facilities include an outstanding library, smaller topical collections in the Department and the School of Architecture and the University's map collection which is housed in the Department. We have adequate computer facilities including a Calcomp Plotter, as well as Wang electronic equipment housed in the Department. Graduate students have office space within the Department and may arrange for carrels in the main library.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The Master of Arts degree is designed for the student who desires to pursue a course of intensive study in a broad range of specialities and modern research in geography. The curriculum for the Master of Arts degree is planned particularly to meet the needs of those who expect to continue with a professional career either in academic or applied fields. Training in research techniques, including quantitative methods, field investigations, and the preparation of scholarly papers accompanied by cartographic analysis and synthesis are the goals of this

program. A thesis demonstrating research ability is required as part of the degree program. An alternative plan requires the writing of two substantial research papers under the guidance of two different graduate faculty members.

The Doctor of Philosophy program encourages research and training in a variety of specializations under the broad rubric of Urban Geography and Regional Resource Analysis (Physical and Human Resources). Faculty research interests in advanced graduate training include: Analytical-Quantitative Urban Geography, Marketing Geography, Urban Spatial Structure, Urban Spatio-Temporal Processes, Advanced Quantitative Methods and Modelling, Energy and Water Resources, Regional Economic Development, Population Problems, Cultural Geography, Medical Geography, Soviet Union and Eastern Europe, Sub-Saharan Africa and India.

Applicants for admission to the program must meet the Graduate College requirements and satisfy the graduate faculty of the Department that they have the capability of pursuing work at the doctoral level. Specialization within the program is achieved through course selection, research projects and the doctoral dissertation topic. Individual programs are planned by the student's advisor in consultation with doctoral faculty.

In addition to completing the requirements of the Graduate College, students must demonstrate a proficiency in those areas required for a master's degree at Kent State University, i.e., cartography, quantitative methods, development of geographic concepts and thought, and the comprehension and writing of English. Before being admitted to candidacy for the doctoral degree students must: possess competency in quantitative methods, field methods, demonstrate a comprehensive knowledge of one foreign language, or a reading knowledge of two (based on the GSFLT), or a comprehensive knowledge of Fortran IV, to be determined by the student and the doctoral faculty of the department, and pass the candidacy examination. A dissertation is required of all students and must be successfully defended before a committee of the graduate faculty. All students must meet Department minimum requirements (copy is available upon request).

The Doctoral degree requires at least 90 hours beyond the Master's, at least 45 hours of which are for the dissertation.

The Department of Geography at Kent State University encourages applications from qualified students representing all minority groups and women, and is able to support well qualified applicants with assistantship grants at both M.A. and Ph.D. levels of study.

The Department currently has four doctoral teaching fellowships each valued at $4400 per academic year.

Other departmental appointments support approximately 20 persons at both the M.A. and Ph.D. levels. Academic year stipends are: M.A.—$2700; Ph.D.—$3600.

The Department currently has one University fellowship (non-service) which pays $3200 per academic year. All appointments provide a partial fee remission of $735 per academic year. Note that all graduate appointees are classed as Ohio residents for fee purposes.

All appointments are for one academic year. M.A. appointments are renewable for a total of two years (6 quarters) of support. Ph.D. appointments are

renewable for a total of three years (9 quarters) of support.

Summer doctoral awards (non-service) valued at $600 plus partial fee waiver, are often available and do not count in totaling the maximum support period.

STAFF:

Surinder M. Bhardwaj, Ph.D., Minnesota, 1970, Associate Professor and Chairman—cultural, India, medical, geographic thought

Erich F. Bordne, Ph.D., Syracuse, 1954, Professor—climatology, water resources, conservation, North America, Western Europe

Bart J. Epstein, Ph.D., Clark, 1956, Professor and Research Associate, Center for Urban Regionalism—urban, marketing, urban field studies

Frank A. Erickson, Ph.D., Illinois, 1973, Assistant Professor—resources, Latin America

Milton E. Harvey, Ph.D., Durham (U.K.), 1966, Professor—quantitative, urban

Jordan A. Hodgkins, Ph.D., Syracuse, 1959, Professor of Soviet Geography—economic, natural resources, energy resources, U.S.S.R. and Eastern Europe

Brian P. Holly, Ph.D., Michigan State, 1974, Assistant Professor—urban, spatial interaction, quantitative, computer cartography

Richard T. Lewis, Ph.D., Syracuse, 1970, Assistant Professor—urban, historical, economic, United States

Hallock F. Raup, Ph.D., UC, Berkeley, 1935, Emeritus Professor—cultural, historical toponymy, Anglo-America

James A. Rinier, M.A., Kent State, 1950, Professor—physical, soils, conservation, North America, Western Europe, rural field studies

Bradford L. Thomas, M.A., Kansas, 1958, Assistant Professor—urban, cartography, North America

Herbert L. Zobel, Ph.D., Michigan, 1964, Associate Professor—educational, U.S. and Canada

University of Kentucky

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 2 M.A., 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**5 M.A.**	**4 Ph.D.**
NOT IN RESIDENCE:	**8 M.A.**	**10 Ph.D.**

CHAIRMAN: Karl B. Raitz

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Ms. Joy Huston, Department of Geography, University of Kentucky, Lexington, Kentucky 40506 Telephone (606) 258-2931/2932

PROGRAMS AND RESEARCH FACILITIES: The Department offers a flexible approach to graduate education in geography. Except for a few methodological

seminars, each graduate student has the responsibility to formulate his own program of study and research. Graduate advisors approve each student's program on the basis of its consistence in terms of the student's research interests and academic goals. Fields of concentration which doctoral candidates may select are: Cultural Geography; Urban Geography; Political Geography; Regional Structure and Development; Geography of the Developing World. Adequate cartographic laboratories, computing, and research facilities are available for graduate students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Applicants must have a grade-point standing of over 3.0 on a basis of 4.0 for admission to the program. Several graduate assistantships and fellowships are available for qualified students. For details write to the Department of Geography.

STAFF:

W. A. Bladen, Ph.D., Kentucky, 1972, Associate Professor—remote sensing, political, Appalachia, Europe, Middle East and Far East

Thomas P. Field, Ph.D., North Carolina, 1948, Professor—settlement, Australia, cartography

P. P. Karan, Ph.D., Indiana, 1956, Professor—political and economic, Inner Asia

Thomas R. Leinbach, Ph.D., Pennsylvania State, 1971, Associate Professor—economic, transportation, Southeast Asia

E. Cotton Mather, Ph.D., Wisconsin, 1951, Adjunct Professor—cultural geography, especially rural settlement

Terry McIntosh, Ph.D., Michigan State, 1974, Assistant Professor—political, population growths and migration, Latin America

Phillip D. Phillips, Ph.D., Minnesota, 1972, Assistant Professor—urban and economic, social geography of North America

Karl B. Raitz, Ph.D., Minnesota, 1970, Associate Professor (Chairman and Director of Graduate Studies)—cultural, field methods, United States and Canada

Richard I. Towber, Ph.D., Washington, 1974, Assistant Professor—economic-urban, Soviet Union

Richard Ulack, Ph.D., Pennsylvania State, 1972, Assistant Professor—population, developing world, especially Southeast Asia

W. A. Withington, Ph.D., Northwestern, 1955, Associate Professor—Southeast Asia, urban dynamics, regional theory

Associate Professor position to be filled.

Louisiana State University

DEPARTMENT OF GEOGRAPHY AND ANTHROPOLOGY

DEGREES OFFERED: M.A., M.S. in both Geography and Anthropology, Ph.D. in Geography

GRANTED 7/1/76–6/30/77: 8 Masters, 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 39 M.A. 13 Ph.D.

NOT IN RESIDENCE: 10 M.A. 4 Ph.D.

CHAIRMAN: Sam B. Hilliard

FOR CATALOG AND FURTHER INFORMATION WRITE TO: R. H. Kesel, Graduate Coordinator, Department of Geography and Anthropology, Louisiana State University, Baton Rouge, Louisiana 70803
Telephone (504) 388-5942, 5943

PROGRAMS AND RESEARCH FACILITIES: Departmental emphases are cultural-historical geography and physical geography. In cultural-historical geography attention is directed toward settlement, agricultural, and historical geography in the southern United States, the tropics, and in Latin America. The combination of geography and anthropology in a single department provides the student of the cultural landscape with a unique opportunity to select views and methods from each discipline that best relate to his research interests. Cultural-historical geography is affiliated with other human sciences on campus to form an effective area program directed by the Latin American Studies Institute.

In physical geography attention is directed toward alluvial and coastal morphology, water-budget climatology, and closely related aspects of vegetation and soils. Regional emphases include the southern United States, the tropics, Latin America, and the Arctic. Close working ties connect the interested student with the Department of Geology and the Coastal Studies Institute. The developing Center for Wetland Resources also provides opportunities for cross-disciplinary work.

Research techniques are vital to the training in both the cultural and physical curricula, and courses in aerial photography, remote sensing, cartography, computer cartography, and statistics are offered. Fieldwork is especially encouraged and a number of trips are planned; student participation is encouraged.

The 1.5 million volume library is especially strong in geography and anthropology with an outstanding journal collection. The comprehensive map collection affords opportunity for contemporary, historical, and prehistoric studies.

Aerial photo collections include coverage of Louisiana, Mexico, and parts of southeast Asia. Facilities for cartographic and aerial photo interpretation, laboratories for sediment analysis and palynology, and an up-to-date computer graphics center with terminal in the department are available to the committed student.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system. Selection is based on compatibility of interests with departmental programs; on grades, letters of recommendation, and Graduate Record Examination scores. Undergraduates must have a minimum overall grade point average of 2.5 and a minimum of 3.0 for the last four semesters completed prior to application. Applicants for assistantships must take the GRE at the first opportunity; it is required for entrance into the program.

Graduate Assistantships start at $2800 for nine months and include the waiver of tuition (including nonresident fee) except for $55 per semester University fee and $17 transportation fee per semester. Research Assistantships are occasionally available to the highly qualified student.

FULL-TIME STAFF:

Roland E. Chardon, Ph.D., Minnesota, 1961, Associate Professor—cultural, Latin America

William V. Davidson, Ph.D., Wisconsin-Milwaukee, 1972, Assistant Professor—cultural, historical, Caribbean, Central America

Jay D. Edwards, Ph.D., Tulane, 1970, Assistant Professor—anthropology, Latin America

William G. Haag, Ph.D., Michigan, 1948, Alumni Professor—ethnology, archaeology, West Indies

Sam B. Hilliard, Ph.D., Wisconsin, 1971, Professor—historical, agricultural, Anglo-America

Richard H. Kesel, Ph.D., Maryland, 1971, Associate Professor—geomorphology, soils, biogeography

Philip B. Larimore, M.S., Virginia, 1954, Assistant Professor—cartography

Anthony J. Lewis, Ph.D., Kansas, 1971, Associate Professor—cartography, aerial photo interpretation, remote sensing

Robert A. Muller, Ph.D., Syracuse, 1962, Professor—climatology, hydrology, North America

Robert W. Neuman, M.A., Louisiana State, 1956, Assistant Professor and Curator of Anthropology—archaeology, prehistoric ecology, Southeastern United States

Milton B. Newton, Jr., Ph.D., Louisiana State, 1967, Associate Professor—cultural, prehistoric settlement, Louisiana, U.S. Southeast

Robert R. Rathburn, Ph.D., Wisconsin, 1976, Assistant Professor—linguistics, Pacific Northwest

Miles R. Richardson, Ph.D., Tulane, 1965, Professor—material culture and behavior, Spanish America

Donald E. Vermeer, Ph.D., UC, Berkeley, 1964, Professor—cultural, physical, Africa

H. J. Walker, Ph.D., Louisiana State, 1960, Professor—alluvial and coastal morphology, geomorphology, Arctic

Robert C. West, Ph.D., UC, Berkeley, 1946, Boyd Professor—cultural, historical, ethnology, Latin America

PART-TIME STAFF:

Fred B. Kniffen, Ph.D., UC, Berkeley, 1930, Boyd Professor Emeritus—cultural, ethnology, Louisiana, Eastern U.S.

William G. McIntire, Ph.D., Louisiana State, 1954, Professor of Geography and

Associate Director, Center for Wetland Resources—geomorphology, archaeology, coastal environments

Mankato State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S., M.A., M.A.T., M.S. Junior College Teaching

GRANTED 7/1/76–6/30/77: 2

GRADUATE STUDENTS IN RESIDENCE: 7

NOT IN RESIDENCE: 12

CHAIRMAN: James F. Goff

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Department of Geography, Mankato State, Mankato, Minnesota 56001
Telephone (507) 389-2617

PROGRAMS AND RESEARCH FACILITIES: The department stresses broad preparation for advanced graduate work, field projects in various levels of teaching, and careers in applied geography. Major strengths are in Urban and Regional Planning, Conservation, and Techniques. Graduate programs in Geography require a thesis or internship; the M.A. requires a language or statistical skill. The department maintains a library, a well-equipped cartography laboratory, and a wide variety of field and laboratory equipment. A UNIVAC 1106 Computer is normally available for graduate student and faculty use. The college library is a rapidly expanding facility, with a new map library. It maintains all of the major geographic journals and is a depository for the U.S. Government and the United Nations.

Several staff members participate as faculty of the urban studies and environmental institutes.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Students must fulfill the requirements for admission to graduate school and be admitted by the department for the degree program desired. The department has a limited number of graduate assistantships.

STAFF:

Lawrence C. Anderson, Ed.D., Idaho, 1968, Professor—geographic education, agriculture, Polar lands

Branko Colakovic, Ph.D., Minnesota, 1970, Associate Professor—Eastern Europe, cultural, urban

William A. Davenport, Ph.D., Oregon, 1971, Associate Professor—biogeography, tropical agriculture, Latin America

Mary T. Dooley, Ph.D., Michigan State, 1975, Professor—historical, Anglo-America

William W. Girard, Ph.D., Iowa, 1976, Associate Professor—geomorphology, quantitative techniques

James F. Goff, Ph.D., Illinois, 1970, Professor and Chairman—political, Soviet Union, military

Edwin L. Groenhoff, Ed.D., Colorado, 1968, Associate Professor—geographic education, geography of religion

Phillip S. Kelley, Ph.D. candidate, Washington, Assistant Professor—air-photo interpretation, cartography, conservation, computer graphics

George Stoops, M.A., AIP, Illinois, 1968, Associate Professor—urban and regional planning

David L. Thurston, M.S., Chicago, 1964, Associate Professor—manufacturing, recreation, quantitative techniques

Perry S. Wood, Ph.D., Nebraska, 1973, Associate Professor—urban, field methods

University of Maryland

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 4 M.A., 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 24 M.A. 18 Ph.D.

NOT IN RESIDENCE: 25 M.A. 9 Ph.D.

CHAIRMAN: Robert A. Harper

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Robert A. Harper, Chairman, Department of Geography, University of Maryland, College Park, Maryland 20742
Telephone (301) 454-2241

PROGRAMS AND RESEARCH FACILITIES: Graduate programs are designed to provide individually designed specialization. Departmental specialties are:

PHYSICAL: specialization in process geomorphology, morphometric analysis, microclimatology, and water resources. Interdisciplinary study in support of the selected specialization is encouraged.

CULTURAL: with particular attention to historical geography. Broad interdisciplinary approach is encouraged. Special interest in tropical areas, health and disease, and resource use.

METROPOLITAN STUDIES: with emphasis on the functions, internal structure and interrelationships of urban areas. This specialty encompasses quantitative, historical, and systems approaches to urban problems. It is supported particularly by work in the Departments of Economics, Sociology, and Political Science, by the University's Institute for Urban Studies, and by association with the Washington Center for Metropolitan Studies.

REGIONAL: specialization is possible in several areas (see staff listings).

The University of Maryland is eight miles (20 min.) from the incomparable library and research facilities of Washington, D.C. Its location in the Baltimore-Washington urban region provides students with the opportunity to examine at first hand the southern portion of Megalopolis, while the proximity of the Appalachians, the Piedmont and the Coastal Plain with the Chesapeake Bay offers additional research challenges. Departmental research facilities include a reference library, map collection and cartographic shop. A remote computer console in the building has direct connection with the University's Computer Science Center.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester. Admission (M.A. and Ph.D.): B (3.0) average, Graduate Record Examination (verbal and mathematical), and three letters of recommendation. Ph.D. students should provide a complete statement of areas of specialization together with research plans. Financial support: Graduate Assistantships currently provide a stipend of $3800 for new graduate students and additional steps for Ph.D. students plus remission of tuition and are renewable. Various university fellowships and government-supported traineeships are available.

STAFF:

Harold Brodsky, Ph.D., Washington, 1966, Associate Professor—quantitative, urban

Antonio F. Chaves, Ph.D., Havana, 1946, Associate Professor—South America, political

Charles M. Christian, Ph.D., Illinois, 1975, Assistant Professor—urban social, quantitative methods

Joseph Cirrincione, Ph.D., Ohio State, 1970, Assistant Professor (cross appointment with Secondary Education)—geography in education

Walter W. Deshler, Ph.D., Maryland, 1957, Professor—tropical settlement, cultural resources, Africa

L. Schuyler Fonaroff, Ph.D., Johns Hopkins, 1961, Professor—cultural, medical, biogeography

Ronald Garst, Ph.D., Michigan State, 1972, Assistant Professor—spatial diffusion, Africa, agriculture

Paul A. Groves, Ph.D., UC, Berkeley, 1969, Associate Professor—urban, industrial, historical

Robert A. Harper, Ph.D., Chicago, 1950, Professor and Chairman—metropolitan and regional development, geography in education

Robert D. Mitchell, Ph.D., Wisconsin, 1969, Associate Professor—historical, North America, Western Europe

Donald Petzold, Ph.D. candidate, McGill, Lecturer—climatology, microclimatology

Charles Roswell, Ph.D., Maryland, 1974, Assistant Professor—biogeography, soils, geomorphology, remote sensing

Derek Thompson, Ph.D., Indiana, 1966, Associate Professor—transportation, locational analysis, spatial interaction

Colin E. Thorn, Ph.D., Colorado, 1974, Assistant Professor—geomorphology (processes, Quaternary)

Joseph W. Wiedel, M.A., Maryland, 1963, Associate Professor—cartography

Gary Yoshioka, Ph.D., Johns Hopkins, 1975, Assistant Professor—water resources, pollution

Visiting Faculty during 1977-78 to be appointed.

Miami University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A. in Teaching

GRANTED 8/1/76-6/30/77: 11

GRADUATE STUDENTS IN RESIDENCE: 14

NOT IN RESIDENCE: 5

CHAIRMAN: Richard V. Smith

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Richard V. Smith, Department of Geography, 219 Shideler Hall, Miami University, Oxford, Ohio 45056
Telephone (513) 529-5010

PROGRAMS AND RESEARCH FACILITIES: The M.A. program is a broadly conceived professional curriculum for students intending to pursue work in geography beyond the master's degree or to enter directly into local and federal government or industrial employment. The department operates in the belief that the M.A. degree should further broaden the student's geographical background, but the program is sufficiently flexible to allow for strengthening his systematic or regional interest. Specialty options are offered in Urban Analysis and Physical-Environmental Analysis. The M.A. program requires 24 semester hours of course work and a thesis, practicum, or an expanded research paper (6 hours). The University provides corollary strengths in the social sciences and languages for students with urban, political, European, and Latin American interests.

The M.A.T. program requiring 30 hours of course work is designed for students certified to teach and intending to pursue a school teaching career.

The department occupies new facilities, utilizes a modern cartography and aerial photography laboratory, map and photo collections, reproduction equipment, and calculators. All students have access to the facilities of the Computing Center, Scripps Foundation for Research in Population Problems, and the Audio-Visual Service.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan:* Semester System. *Admission Requirements:* Bachelor's degree from an accredited college or university; cumulative minimum grade point average of 2.5 (of a possible 4.0); departmental approval. *Financial Aid:* Graduate Assistantships: $2800 plus tuition (1977-78 academic year). *Grants-in-aid:* Tuition.

STAFF:

Robert S. Bacon, Ph.D. (Psychology), Nebraska, Ph.D. (Geography), Colorado, Associate Professor—population, behavioral-cultural, urban

Martin E. Dulgarian, Ph.D., Michigan, Associate Professor—Asia, history and philosophy of geography, political

Jerry E. Green, Ph.D., North Carolina, Assistant Professor—physical natural resources, land use planning, remote sensing

John C. Klink, Ph.D., Minnesota, Assistant Professor—climatology, soils

Howell C. Lloyd, Ph.D., Northwestern, Professor—political, Europe, settlement

Byron E. Logan, Ph.D., North Carolina, Associate Professor—Africa, economic, Brazil

James M. Rubenstein, Ph.D., Johns Hopkins, Assistant Professor—planning, urban policy analysis, new towns

Lee H. Slorp, Ph.D. candidate, Illinois, Instructor—plant geography, land forms, cartography, remote sensing

Richard V. Smith, Ph.D., Northwestern, Professor and Chairman—urban, population, recreation

John L. Thompson, Ph.D., Wisconsin, Professor—conservation, Soviet Union, energy resources

Joseph T. Urell, Ph.D., Cincinnati, Assistant Professor—urban-residential mobility, twentieth-century geographic thought

Cyrus W. Young, Ph.D., Michigan State, Associate Professor—transportation, urban, urban planning

University of Miami

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 3

GRADUATE STUDENTS IN RESIDENCE: 8

NOT IN RESIDENCE: 5

ACTING CHAIRMAN: Donald L. Capone

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Donald L. Capone, Acting Chairman, Department of Geography, P.O. Box 248152, University of Miami, Coral Gables, Florida 33124
Telephone (305) 284-4087

PROGRAMS AND RESEARCH FACILITIES: The University of Miami is located in a growing, uniquely cosmopolitan urban area on the margins of the Caribbean. Appropriately, the Department of Geography has particular strength in the fields of urban geography (in association with the University's Center for Urban Studies) and tropical area studies (in combination with the Center for Advanced International Studies). Programs leading to the Master's Degree tend to focus systematically upon urban problems and regionally upon tropical studies, though not to the exclusion of other combinations: there is much flexibility and arrangements are made to serve individual needs. The possibilities involved are reflected by the faculty's areas of specialization, given below.

The Department's facilities incorporate a large map library and a cartographic laboratory whose equipment includes a darkroom and complete color production facilities. The University Library houses a substantial collection of geographic literature; modern computer facilities exist on the campus. The University maintains field stations, available for use by the Department, at Pigeon Key (an island in the Florida Keys) and in the Everglades.

The *Transactions of the Miami Geographical Society* are published in the Department.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University of Miami operates on the semester system. The general requirements for the M.A. include (1) thirty credits at the graduate level, of which 18 should be in the major and 6 in the thesis work, (2) successful completion of the core program; including courses in field research, cartography, methodology, and quantitative analysis, (3) an adequate performance in three two-hour written examinations, and (4) submittal and successful oral defense of a Master's thesis. Applicants should have a B average in their undergraduate work and should have a combined four-figure score in the Graduate Record Examination. Financial aid includes Departmental assistantships ($2400) and University Fellowships.

STAFF:

Thomas D. Boswell, Ph.D., Columbia, 1973, Assistant Professor—population, social, Latin America

Donald L. Capone, Ph.D., Michigan State, 1971, Associate Professor and Acting Chairman—cartography, crime, East Africa, resource management

Harm J. deBlij, Ph.D., Northwestern, 1959, Professor and Associate Dean, College of Arts and Sciences—political, Southern Africa

John G. Hehr, Ph.D., Michigan State, 1971, Assistant Professor—climatology, Middle America

J. Richard Jones, Ph.D., Boston, 1976, Assistant Professor—geomorphology, biogeography, coastal resources

Aharon Kellerman, Ph.D., Boston, 1976, Visiting Assistant Professor—economic, locational analysis

Richard D. Kreske, M.S., Syracuse, 1939, Professor—historical, medical, Eastern Europe

Ira M. Sheskin, Ph.D., Ohio State, 1977, Assistant Professor—transportation, urban

Michigan State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., M.A.T., Ph.D.

GRANTED 7/1/76–6/30/77: 12 Masters, 6 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**53 Masters**	**25 Ph.D.**
NOT IN RESIDENCE:	**13 Masters**	**14 Ph.D.**

CHAIRMAN: Lawrence M. Sommers

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Admissions Committee or L. M. Sommers, Chairman, Department of Geography, M.S.U., East Lansing, Michigan 48824
Telephone (517) 355-4649

PROGRAMS AND RESEARCH FACILITIES: Graduate programs are designed to give various levels of professional competence in the tools, substance, methodology and theory of geography. Systematic fields of emphasis are cultural-historical, urban-economic, physical, and cartography-remote sensing with other programs possible as indicated by faculty specializations. Faculty research and travel give regional strength in Africa, Latin America, Europe, East Asia, Middle East, United States, and Canada.

Strong supporting fields exist such as the social sciences, history, soils, geology, food sciences, community medicine, resource development, marketing, urban planning, recreation, and transportation. Geographic study and research are facilitated by the African, Asian, and Latin American Studies Centers, the College for Urban Development, and the University Computer Center.

Vocationally oriented programs have been developed leading to specializations in cartography, computer applications, and social services analysis. A land use Masters option is available.

The MSU library contains well over 2 million volumes and a map library. The Department is well housed; facilities include an extensive aerial photo collection, a well-equipped cartography laboratory and a Center for Cartographic Research and Spatial Analysis, a computer terminal in the Department, and easy access to the University CDC 6500 computer including a Tektronix terminal for automated map reproduction. University housing includes numerous on-campus apartments and a graduate dormitory.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan*—quarter system. *Admission requirements for M.A.*—completion of an undergraduate degree with a B average for last two academic years; encourage any qualified student in terms of grades to apply. *Ph.D.*—completion of master's degree or equivalent, satisfactory grade-point average.

Teaching assistantships, university scholarships, research assistantships in cartography, M.S.U. Graduate Office scholarships, and other awards are

available. Quarter-time stipends beginning at $1840 and half-time stipends starting at $3680 are available depending on the degree held (1976-77 rates). Deadline for applications is February 15 for admission the following autumn.

STAFF:

Georg Borgstrom, D.Sc., Lund—population, world food and water resources, ecological geography

Stanley Brunn, Ph.D., Ohio State—political, urban, quantitative methods, social, futures

Dieter Brunnschweiler, Ph.D., Zurich—physical, remote sensing, Latin America

Michael Chubb, Ph.D., Michigan State—recreation geography, resource geography, environmental quality, research methods

Joe T. Darden, Ph.D., Pittsburgh—urban-social, cultural, U.S.

Richard Groop, Ph.D., Kansas—cartography, population

Jay R. Harman, Ph.D., Illinois—physical (plant geography, synoptic climatology)

John M. Hunter, Ph.D., Reading—medical, Africa

Daniel Jacobson, Ph.D., Louisiana State—cultural-historical, education

Gary Manson, Ph.D., Washington—geographic education, introductory geography

Ian M. Matley, Ph.D., Michigan—cultural, U.S.S.R., East Europe

Clarence W. Minkel, Ph.D., Syracuse—economic, Latin America

Bruce W. Pigozzi, Ph.D., Indiana—economic, transportation, quantitative

Elizabeth A. Ross, Ph.D., Texas—cultural-historical, Southeast Asia

Richard M. Smith, D.A., Northern Colorado—cartography, social

Lawrence M. Sommers, Ph.D., Northwestern—methodology, Western Europe

Robert N. Thomas, Ph.D., Pennsylvania State—population, migration systems, Latin America

Clarence L. Vinge, Professor Emeritus

Jack Williams, Ph.D., Hawaii—agricultural, East Asia, Southeast Asia, cartography

Harold A. Winters, Ph.D., Northwestern—physical (geomorphology), Michigan

Robert I. Wittick, Ph.D., Iowa—transportation, information systems, quantitative, computer techniques

The University of Michigan

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., Ph.D.

GRANTED 7/1/76–6/30/77: 3 Masters, 5 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**15 Masters**	**16 Ph.D.**
NOT IN RESIDENCE:	**1 Masters**	**5 Ph.D.**

CHAIRMAN: Donald R. Deskins, Jr.

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Department of Geography, The University of Michigan, Ann Arbor, Michigan 48104
Telephone (313) 764-0340

PROGRAMS AND RESEARCH FACILITIES: *Systematic Human Geography:* Focuses on market economies or "developing" and subsistence economies. Interdisciplinary studies may include work in the Metropolitan Community Research Project, Urban and Regional Planning, the Transportation Institute, the School of Natural Resources, and the various Centers for area studies.

Physical Geography: Emphasizes physical and biological processes occurring at the earth's surface. Fields of study include climatology; glaciology; alpine, subpolar and polar environments; plant geography; relations between vegetation and geomorphic processes. Facilities include physical geography laboratories and field equipment.

Theoretical Geography: Formal geographical theory is presented in subject-matter courses in research methods. Emphasizes research design, library and field studies, model building, quantitative methods, computer applications, and cartographic analysis. Computer facilities and cognate courses in other departments are available.

Cartography: Includes training in the history of cartography, modern concepts of statistical cartography, computer methods in cartography, the theory of map projections, interpretation of aerial photographs and remotely sensed imagery, photogrammetry, surveying and geodesy. Facilities include cartographic laboratory, darkroom, computer-plotter, and a large map collection.

History of Geography: A unique collection of rare books, manuscripts, atlases and maps on the history of geography, cartography, and exploration in the Clements Library and related holdings in the University Library are available.

Regional Geography: The department staff includes members who have a major interest, including extensive field experience, in the following areas: South, Southeast, and East Asia; Near East and North Africa; Europe and the Soviet Union; Latin America; Subsaharan Africa; the Pacific. The University's resources for the study of Asia make it one of the leading centers in the world.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Trimester system.*

Admission requirements: The department welcomes correspondence from students who desire professional training in geography. Graduate admission to geography at Michigan is determined by ability and interest in geography and related fields. Applications for admission are invited from students with strong backgrounds in the social or natural sciences, as well as students with superior records in geography. Applications for admission should be directed to the Horace H. Rackham School of Graduate Studies of the University of Michigan. Early application is recommended, not later than February 1st, for admission the following autumn

Financial aid: The department grants various kinds of financial assistance to graduate students and may also recommend students for support from sources outside the department. An application for several types of scholarships, fellow-

ships, and assistantships is forwarded with the admission application. The majority of resident graduate students are supported by fellowships and scholarships, including the following: Rackham School of Graduate Studies fellowships and scholarships, teaching assistantships and program fellowships in the Graduate School.

STAFF:

Everette N. Bannister, Ph.D., Pittsburgh, 1976, Assistant Professor—physical, geomorphology

Kathleen M. Brown, Ph.D., Minnesota, 1976, Visiting Assistant Professor—urban, economic

James D. Clarkson, Ph.D., Chicago, 1967, Associate Professor—cultural, Southeast Asia

Donald R. Deskins, Ph.D., Michigan, 1970, Associate Professor and Chairman—urban, social

Thomas R. Detwyler, Ph.D., Johns Hopkins, 1966, Associate Professor—environment, energy systems

L. A. Peter Gosling, Ph.D., Michigan, 1958, Professor—Southeast Asia

George Kish, D.Sc., Budapest, 1939, Ph.D., Michigan, 1945, Professor—political, U.S.S.R., Europe

John F. Kolars, Ph.D., Chicago, 1963, Professor—cultural, non-western resource use, Near East

Ann E. Larimore, Ph.D., Chicago, 1958, Professor—cultural (Residential College)

Rhoads Murphey, Ph.D., Harvard, 1950, Professor—historical, China, South Asia

John D. Nystuen, Ph.D., Washington, 1959, Professor—economic, urban

Samuel I. Outcalt, Ph.D., British Columbia, 1970, Associate Professor—physical, climatology, glaciology

Richard A. Taketa, Ph.D. candidate, Washington, Visiting Assistant Professor—cartography, urban, remote sensing

Susan Trussler, Ph.D. candidate, Pennsylvania State, Visiting Assistant Professor—economic, spatial analysis, transportation, land use

Additional faculty to be appointed.

University of Minnesota

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 10 M.A., 6 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**29 M.A.**	**24 Ph.D.**
NOT IN RESIDENCE:		**10 Ph.D.**

CHAIRMAN: Fred E. Lukermann

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor Fred E. Lukermann, Chairman, Department of Geography, University of Minnesota, 414 Social Science Building, Minneapolis, Minnesota 55455
Telephone (612) 373-2661

PROGRAMS AND RESEARCH FACILITIES: The special character of the Geography Department at Minnesota has evolved over a considerable length of time. The most pervasive elements have been the strong historical orientation deriving from the era of Ralph Brown and the interest in cultural geography introduced by Jan O.M. Broek. As the department has grown and developed since the late 1940's, increasing attention has been devoted to the history and philosophy of geography, cartography and quantitative analysis as well as to problems of urban and regional development. More recently the specialty in physical geography has been reinforced. The faculty have a wide range of regional interests, and the department participates in all area or regional studies programs. Graduate students are encouraged to develop with their advisers a program which fits their individual talents and needs. Laboratory, cartography and lecture classrooms are directly connected with departmental facilities. Computer facilities and programming services are available through the Social Sciences Research Facilities Center nearby.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University of Minnesota is on the quarter system. Students entering graduate studies normally have a strong undergraduate major in geography and some preparation in a related field or fields. Half-time teaching assistantships in courses in the departmental curriculum and assistantships in cartography, bibliography, computer programming, planning, and in team research projects are available for the academic year. Assistantship stipends at present range from $4226 to $5229 for nine months, plus remission of nonresident tuition and fees. Students may be nominated for Bush Foundation Fellowships, which pay tuition and offer a stipend of $3500.

HUMAN RIGHTS STATEMENT: The Board of Regents has committed itself and the University of Minnesota to the policy that there shall be no discrimination on the basis of race, creed, color, sex, age, or national origin. In adhering to this policy, the University abides by the requirements of Titles VI and VII of the Civil Rights Act of 1964, Revised Order No. 4, Executive Orders 11246 and 11375, Sections 799A and 845 of the Public Health Service Act, and other federal regulations and pertinent acts of Congress.

It is also the policy of the University of Minnesota not to discriminate on the basis of sex in its educational programs, admissions, activities, or employment policies as required by Title IX of the Education Amendments of 1972.

Inquiries regarding compliance may be directed to Lillian H. Williams, Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, Minneapolis, Minnesota 55455, (612) 373-7969, or to the Director of the Office of Civil Rights, Department of Health, Education, and Welfare, Washington, D.C. 20201.

STAFF:

John S. Adams, Ph.D., Minnesota, 1966, Professor and Director of Public Affairs—American cities, regional analysis

Russell B. Adams, Ph.D., Minnesota, 1969, Associate Professor—quantitative-economic, U.S.S.R.

Ward J. Barrett, Ph.D., UC, Berkeley, 1959, Professor—Middle America, Oceania, historical

Bonnie Barton, Ph.D., Michigan, 1972, Assistant Professor—theoretical, explanation in geography

John R. Borchert, Ph.D., Wisconsin, 1949, Professor—metropolitan and regional land use planning

Dwight A. Brown, Ph.D., Kansas, 1968, Associate Professor—physical, cartography, remote sensing of environment

Philip J. Gersmehl, Ph.D., Georgia, 1970, Associate Professor—biogeography, soils

John Fraser Hart, Ph.D., Northwestern, 1949, Professor—cultural, North America

Mei-Ling Hsu, Ph.D., Wisconsin, 1966, Professor—thematic mapping, East Asia, quantitative methods

Anthony C. Lea, Ph.D. candidate, Toronto, Instructor—location theory, quantitative methods

Fred E. Lukermann, M.A., Minnesota, 1950, Professor and Chairman—historical-geographical thought

E. Cotton Mather, Ph.D., Wisconsin, 1951, Professor—rural settlement of the Americas

Philip W. Porter, Ph.D., London, 1957, Professor—cartography, air-photo interpretation, Africa

John G. Rice, Fil. lic., Uppsala, 1965, Associate Professor—historical, Europe, especially the Scandinavian states and Finland

Joseph E. Schwartzberg, Ph.D., Wisconsin, 1960, Professor—South Asia, Southeast Asia, political

Earl P. Scott, Ph.D., Michigan, 1974, Assistant Professor—cultural, economic, Africa

Eric S. Sheppard, Ph.D., Toronto, 1977, Assistant Professor—economic, geographical theory, quantitative spatial analysis

Richard H. Skaggs, Ph.D., Kansas, 1967, Associate Professor—climatology

Roderick H. Squires, Ph.D., Durham, 1970, Assistant Professor—biogeography, paleogeography

Yi-Fu Tuan, Ph.D., UC, Berkeley, 1957, Professor—cultural, environmental perception

John W. Webb, Ph.D., Minnesota, 1958, Professor—human, especially settlement and population, Europe

Mississippi State University

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

DEGREES OFFERED: M.S., M.A.T., M.S.S.

GRANTED 7/1/76–6/30/77: None in geography

GRADUATE STUDENTS IN RESIDENCE: 2 M.S.

CHAIRMAN: Troy J. Laswell

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Troy J. Laswell, Head, Department of Geology and Geography, Mississippi State University, P. O. Box GG, Mississippi State, Mississippi 39762
Telephone (601) 325-5926

PROGRAMS AND RESEARCH FACILITIES: The Master of Arts in Teaching and the Master of Social Studies are non-thesis, interdisciplinary degrees. The Master of Science program requires a minimum of thirty semester hours credit, including six hours of thesis, and proficiency in one foreign language. In the Master of Science program the emphasis is to provide a strong background in systematic and regional geography with techniques and training for independent research. Limited specialization within the department is presently available (remote sensing, quantitative techniques, urban and regional planning, cartography, and some regional specialties). There are numerous opportunities for interdisciplinary studies within this program. Mississippi State University has many strong departments within the Colleges of Agriculture, Arts and Sciences, Business and Industry, Education, Engineering, Veterinary Medicine, and the Schools of Architecture and of Forest Resources. Campus and off-campus research facilities include Mitchell Library, a depository for government publications and a member of many library interchange networks, a large computing center, the Gulf Coast Research Laboratory at Ocean Springs, and the National Space Technology Laboratory at Bay St. Louis. The University is a member of several consortia, such as Gulf Universities Research Consortium, Mississippi-Alabama Sea Grant Consortium, and Oak Ridge Associated Universities.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Minimum admission standards are a 2.5 grade point average for the last two years of undergraduate study, or a minimum of 800 on the aptitude tests of the Graduate Record Examination. Undergraduate programs need not have been in geography, but at least 18 undergraduate hours in geography are prerequisite to the M.S. program in geography. Several graduate assistantships are available. These are normally $2800 for nine months, plus remission of out-of-state fees. Graduate assistants may carry a maximum of ten hours credit per semester. Some additional financial aid may be available from contractual research carried on by the department.

FULL-TIME STAFF:

A. Paul Eason, Ph.D. candidate, Michigan, Assistant Professor (Geography)—cultural, economic, historical, Latin America

Gary K. Higgs, Ph.D., Illinois, 1971, Assistant Professor (Geography)—cartography, cultural, economic, quantitative, remote sensing

Donald M. Keady, Ph.D., Texas A & M, 1970, Associate Professor (Geology)—geomorphology, environmental, water resources

Troy J. Laswell, Ph.D., Missouri, 1953, Professor (Geology and Geography) and Head of Department—climatology, Gulf Coast studies, photo interpretation, physical

Thomas W. Lins, Ph.D., Kansas, 1969, Assistant Professor (Geology)—environmental, oceanography

Merle W. Myers, Ph.D., Clark, 1948, Professor (Geography)—cartography, environmental, Europe, North America, physical, urban

Karl A. Riggs, Ph.D., 1956, Associate Professor (Geology)—economic, mineral resources

Ernest E. Russell, Ph.D., Tennessee, 1965, Professor (Geology)—geomorphology, Gulf Coast studies, paleogeography, paleontology

PART-TIME STAFF:

John M. Kaye, Ph.D., Louisiana State, 1974, Assistant Professor (Geology)—earth sciences, paleogeography, vertebrate paleontology

University of Missouri-Columbia

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 4

GRADUATE STUDENTS IN RESIDENCE: 16

NOT IN RESIDENCE: 3

CHAIRMAN: Richard G. Boehm

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Director of Graduate Studies, Department of Geography, University of Missouri-Columbia, Columbia, Missouri 65201
Telephone (314) 882-8370

PROGRAMS AND RESEARCH FACILITIES: The department offers the M.A. degree on alternative programs, with or without a thesis. Thirty-two hours of course work, which may include varying amounts of individual reading and research, are required. The programs are tailored to fit the individual needs and interests of graduate students, making liberal use of collateral fields where indicated. Strong collateral work is available in atmospheric science, geology, anthropology, eco-

nomics, history, planning, and various other fields. Programs focussed on South Asia, physical geography, North America, and economic geography are common. The University of Missouri library holdings in books, journals, and documentary materials in geography and related fields are very extensive, and computer facilities are readily available. In addition, the department itself has a large collection of books, journals, bibliographical and other research aids, and maps. Close contact between graduate students and staff is emphasized. Graduates are prepared for teaching, for certain other employment, such as planning, and for Ph.D. work.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system. Admission: An applicant with an undergraduate G.P.A. of at least 3.0, on a 4.0 system, may be admitted on the basis of this record alone. Lower G.P.A.'s require strong support in the form of letters of recommendation and good scores on the Graduate Record Examination. Applicants should take the Verbal and Quantitative parts of this examination and may also submit a score in geography or another subject if they so desire. Teaching assistantships of up to $3700 for nine months available on a competitive basis.

STAFF:

Richard G. Boehm, Ph.D., Texas, 1975, Assistant Professor and Chairman—economic, trade, geographic education

Wayne L. Decker, Ph.D., Iowa State, 1955, Professor of Atmospheric Science—climatology

J. Trenton Kostbade, Ph.D., Michigan, 1957, Associate Professor—geographic education, political, Anglo-America, Europe

William A. Noble, Ph.D., Louisiana State, 1968, Associate Professor—cultural, architectural, South Asia

Walter A. Schroeder, Ph.D. candidate, Chicago, Instructor—landforms, field geography, Latin America, Missouri

Jesse H. Wheeler, Jr., Ph.D., Chicago, 1950, Professor—United States, geographic bibliography, college teaching of world regional geography, historical

An Extension Geographer, Assistant Professor, will be added for 1977-78.

University of Montana

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A. in Geography, M.S. in Rural, Town, and Regional Planning

GRANTED 7/1/76–6/30/77: 2

GRADUATE STUDENTS IN RESIDENCE: 4 M.A. 7 M.S.

NOT IN RESIDENCE: 3

CHAIRMAN: H. W. Bockemuehl

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Department of Geography, University of Montana, Missoula, Montana 59801
Telephone (406) 243–4302

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography at Montana is a 7-man department with a small graduate group and an atmosphere in which the student can receive a good deal of individual attention. The mountain location of Missoula offers many research opportunities as well as amenities. Encouragement is given to involvement in research on local, Pacific Northwest, or Rocky Mountain problems.

Programs: The M.A. in geography requires a minimum of 45 graduate credits, a reading knowledge of a foreign language or a substantial competency in quantitative analysis, and a thesis. Thesis topics will be considered in any of the areas of specialization, listed below, of the faculty and faculty affiliates. The M.S. in Rural, Town, and Regional Planning is intended to prepare students for positions in agencies which provide planning services for sparsely populated areas. It involves 70 graduate credits, a six-month internship, and a professional paper. The program relies on course offerings and expertise not only in geography but also in forestry, geology, sociology, economics, political science, and business administration.

Research Facilities: Physical facilities and library holdings are modest but generally adequate for the areas of geography in which theses will be accepted and for the planning program. Facilities may not be adequate for highly specialized research.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan:* Quarter system. Students may enter any quarter.

Admission Requirements: Applications are examined for evidence of potential for scholarly achievement. A 3.0 GPA (on 4.0 system) is required for admission on regular status. All applicants must supply Graduate Record Examination scores (verbal and quantitative), and applicants from non-English speaking countries must have taken the Test of English as a Foreign Language. Applications are welcome from prospective students whose prior training was not in geography or planning. Requirements to make up undergraduate deficiencies are kept to a minimum.

Financial Aid: The Department has three $2800 Graduate Teaching Assistantships which carry remission of most fees. The successful candidates are selected from among those whose applications for admission to the Graduate School are complete on April 1. Opportunities for employment on faculty research or consulting projects are occasionally available.

FACULTY:

Harold W. Bockemuehl, Ph.D., Massey, 1974, Assistant Professor and Chairman—cartography, map and air photo interpretation, urban, Australia—New Zealand—S. W. Pacific

John M. Crowley, Ph.D., Minnesota, 1964, Professor—mountain geography, ecosystem mapping and land-capability analysis, North American West, Montana

Evan Denney, Ph.D., Washington, 1970, Associate Professor—resources, land subdivision, land-use planning, economic, Pacific Northwest

John J. Donahue, Ph.D., Syracuse, 1971, Assistant Professor—landforms, air photo interpretation, terrain evaluation, morphometric analysis

Chris Field, Ph.D., UCLA, 1966, Associate Professor—cultural, environmental change, irrigation, Hispanic America

Darshan S. Kang, Ph.D., Nebraska, Lincoln, 1975, Assistant Professor—water resources, climatology, meteorology, quantitative methods, South Asia

Paul B. Wilson, Ph.D., Nebraska, Lincoln, 1972, Assistant Professor—cartography, map and air photo interpretation, historical, United States

FACULTY AFFILIATES:

G. Wesley Burnett, Jr., Ph.D., Oklahoma, 1977, Montana State Fish and Game Department—recreation planning and state lands use

John H. Crowley, B.A., Maine, 1968, Missoula City-County Planning Director—planning

Robert C. Lucas, Ph.D., Minnesota, 1962, U.S. Forest Service—geography of recreation, resource management and conservation, cultural

George H. Stankey, Ph.D., Michigan State, 1970, U.S. Forest Service—land-use and recreation planning, social

A. L. Zimmerman, B.S., Montana State, 1949, U.S. National Weather Service (retired)—climatology, meteorology, hydrology

Murray State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., M.A. in Education (emphasis in Geography), M.A.C.T., S.C.T.

GRANTED 7/1/76–6/30/77: 0

GRADUATE STUDENTS IN RESIDENCE: 2

NOT IN RESIDENCE: 1

CHAIRMAN: James P. Matthai

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. James P. Matthai, Chairman, Department of Geography, Murray State University, Murray, Kentucky 42071

PROGRAMS AND RESEARCH FACILITIES: The Geography Department offers both the M.A. and M.S. degrees with the thesis (30 hours) or non-thesis (33 hours) option. A third offering is an emphasis in Urban and Regional Planning requiring a nine-hour internship. An oral exam on the thesis material is required of the thesis student and a written comprehensive for the non-thesis student.

The department also participates in three additional graduate programs. They are the M.A. in Education with 18 hours of geography, the Specialist in College Teaching with 30 hours of geography, and the Master of Arts in College Teaching (junior college) requiring also 30 hours in geography. The department has a well-equipped cartography laboratory, several calculators, remote sensing laboratory, a departmental library/reading room, and a map library.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The university operates on the semester system and has an 8-week summer program. To be admitted to graduate school, an undergraduate major in Geography is desirable but not necessary for admittance to the program. However, beginning graduate students are expected to have an adequate knowledge of the field. Students should have completed one undergraduate course in cartography. If this undergraduate requirement has not been met, it is possible to take cartography for undergraduate credit while enrolled in the graduate program. The applicant should have an overall undergraduate grade point average of 2.5 (based on 4.0) or above with a grade point average of 3.0 in geography. Students who do not meet these requirements may be admitted to the program with the approval of the geography faculty.

STAFF:

Daniel W. Cooke, Ph.D., Tennessee, 1975, Assistant Professor—food and energy resources, climatology, Anglo-America, Latin America

William A. Franklin, Ph.D. course work, Tennessee, Associate Professor—urban and regional planning, cartography, recreation, remote sensing

David H. Irwin, M.S., Tennessee, 1949, Associate Professor—climatology, history of geography, Southeast Asia

Thomas C. Kind, Ph.D., Indiana State, 1976, Assistant Professor—geomorphology, air photo interpretation, remote sensing, U.S.

James P. Matthai, Ed.D., Teachers College, Columbia, 1962, Chairman and Professor—geomorphology, conservation, Middle-East

University of Nebraska, Lincoln

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 3 M.A., 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**6 M.A.**	**16 Ph.D.**
NOT IN RESIDENCE:	**9 M.A.**	**3 Ph.D.**

CHAIRMAN: Brian W. Blouet

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Robert H. Stoddard, Chairman, Graduate Committee, Department of Geography, University of

Nebraska, Lincoln, Nebraska 68588
Telephone (402) 472-2865

PROGRAMS AND RESEARCH FACILITIES: Graduate work in geography at Nebraska dates back to 1907 and today blends modern methodologies and theory with some of the stronger traditional fields. Of special significance is the high degree of flexibility in designing programs (no "required" courses) and ample opportunity for courses outside the Department. The Department is housed in air-conditioned quarters near the center of campus, and study accommodations (about four desks to a room) are provided for all graduate students. Two computer terminals, a key punch, and several calculators are available in the immediate area. The major areas of training are:

Spatial Analysis and Theory. Work in geography (spatial theory, spatial and environmental behavior, diffusion, urban, perception, quantitative methods) is supplemented by courses in Regional Economics, Planning, Marketing, Psychology, and Mathematics.

Physical Geography. Climatology is the major focus, and work in physiography, dendrochronology, and water resources is possible. Geographers work closely with persons in Agriculture, Meteorology, Geology, and the Water Resources Institute. The Department has a climatological station and direct access to state weather records.

Historical Geography. Work in this area tends to focus on the Great Plains, both cultural (settlement and land use) and physical (past environments). Of special value is the Nebraska State Historical Society (on campus) with its wealth of archival material, and the interdisciplinary Center for Great Plains Studies.

Cartography. The Department has a very well-equipped cartographic laboratory (Balplex plotter, Kargl projector, Varityper and Headliner, scribing media, photo lab with copy camera and vacuum frame), access to a CALCOMP and two interactive display cathode ray tubes for computer mapping and graphics, many SYMAP and isometric and other programs, etc.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Inquiries are invited from persons with strong undergraduate records and courses in corollary fields. Non-geography majors are welcome to apply. The Department operates on the two-semester system; the M.A. degree requires 30 hours of course work, including a thesis (or 36 hours without a thesis). For the Ph.D., about 36 hours of additional course work are necessary, plus one research tool and a dissertation. GRE scores (verbal and quantitative) are required for Ph.D. applicants and for all applicants for financial assistance, and are strongly recommended for M.A. applicants. The Department holds a number of graduate assistantships ($3600-4000) which provide tuition at in-state rate ($20 cr. hr.) plus free credit hours in summer. Part-time work may be available with local state agencies (capitol within walking distance of campus), doing cartographic work or plotting remote-sensing data, with staff members holding research grants, etc. Admission inquiries should be made early; completed applications for assistantships are due March 1.

STAFF:

Douglas M. Amedeo, Ph.D., Iowa, 1967, Associate Professor—regional analysis, spatial theory

Brian W. Blouet, Ph.D., Hull, 1964, Professor and Chairman—historical settlement, Caribbean, Mediterranean

Kenneth F. Dewey, Ph.D., Toronto, 1973, Assistant Professor—climatology, meteorology, quantitative methods

Arthur V. Douglas, Ph.D., Arizona, 1976, Assistant Professor—meteorology, climatology, climatic change

Leslie Hewes, Ph.D., UC, Berkeley, 1940, Professor Emeritus—historical and cultural geography, Great Plains

Merlin P. Lawson, Ph.D., Clark, 1973, Associate Professor—Pleistocene and historic environments, natural hazard perception, physiography, computer graphics

Richard E. Lonsdale, Ph.D., Syracuse, 1960, Professor—industrial location in rural areas, Soviet Union, Australia

C. Barron McIntosh, Ph.D., Nebraska, 1955, Professor—applied synoptic climatology, soils, Great Plains

Rex M. Peterson, Ph.D., Michigan, 1961, Associate Professor—remote sensing

Dean S. Rugg, Ph.D., Maryland, 1962, Professor—urban, history and philosophy of geography, Eastern and Western Europe

Robert H. Stoddard, Ph.D., Iowa, 1966, Associate Professor—quantitative spatial analysis, social, South Asia

William J. Wayne, Ph.D., Indiana, 1952, Professor (Geography and Geology)—geomorphology, regional physiography

David J. Wishart, Ph.D., Nebraska, 1971, Assistant Professor—historical, cultural, perception of past environments, Great Plains

University of Nebraska at Omaha

DEPARTMENT OF GEOGRAPHY-GEOLOGY

DEGREES OFFERED: M.A., M.S.

GRANTED 7/1/76–6/30/77: 12

GRADUATE STUDENTS IN RESIDENCE: 30

CHAIRMAN: Philip E. Vogel

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Philip E. Vogel, Chairman of the Department of Geography-Geology, University of Nebraska at Omaha, P.O. Box 688, Downtown Station, Omaha, Nebraska 68101
Telephone (402) 554-2662

PROGRAMS AND RESEARCH FACILITIES: The department's graduate program is directed toward a knowledge of and research in urban; urban planning; economic; regional, with special emphasis on Afghanistan; and physical studies.

Our library currently houses more than 150 journals and serials of value to geographers, the complete AGS catalog and map reference catalog. It is linked to the University of Nebraska-Lincoln Library by TWX. Our quantitative and cartographic interests are supported by a University IBM 360 and Kronos CDC 6400. Graphics capabilities include Tektronics terminals and on-line Gould electronic plotting. Our remote sensing photogrammetry laboratory is equipped with several stereoplotters including Zeiss C-5 stereoplanigraph; a Richards image work station complete with Macbeth densitometer; two variscan viewers; and a growing collection of imagery.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The graduate program is based on a philosophy of breadth rather than narrow specialization. This breadth is designed to develop professional competence appropriate to careers in teaching, planning, industry, and government work, as well as preparation for advanced doctoral work. Although emphasis is on breadth, opportunities for some specialization do exist particularly in geomorphology, urban planning, economic, and regional geography.

The Master of Arts with a major in geography is intended for those preparing themselves for areas in other than physical geography, whereas the Master of Science with a major in geography is intended for students electing to do major work in physical geography. Each degree has two options. *Option I* should be chosen by those preparing for careers in research and scholarly work or in college or university teaching. The option requires a minimum of 24 semester hours in geography courses numbered 800M-800V and 900, and thesis 1-6 hours for a combined total of 30 semester hours. *Option II* may be chosen upon the advice and with the approval of the major adviser. This option requires a minimum of 36 semester hours in geography courses numbered 800M or 800V and 900, or selected cognate courses in other departments. No thesis is required for this option. Students who have taken the degree under Option II and later elect to continue in graduate work for the Ph.D. will not be encouraged by the department to continue unless evidence of ability to carry on independent research is presented.

Admission Requirements: To enter either the M.A. or M.S. degree program in geography the applicant must present a minimum of 15 undergraduate semester hours in geography including: physical, economic, and cartography, and should have at least a B (3 point based on a possible 4 point scale) average in all undergraduate work in geography.

Financial Aid: On the basis of undergraduate records and recommendations a number of graduate assistantships are available allowing the student the experience of teaching in laboratories and classroom. The assistantships currently provide a stipend of $3010 per academic year and remit the out-of-state portion of tuition charges. A number of tuition waivers are also available through the Graduate College.

STAFF:

Nicholas Bariss, Ph.D., Clark, 1967, Professor—geomorphology with emphasis on loessic topography, climatology, Europe

Charles R. Gildersleeve, M.A., Arizona, 1964 (plus advanced residence

completed, Nebraska-Lincoln), Assistant Professor—economic, urban, Latin America, with emphasis on location theory

William D. Gosnold, Ph.D., Southern Methodist, 1976, Assistant Professor—geophysics

Jeffrey S. Peake, Ph.D., Louisiana State, 1977, Assistant Professor—physical, climatology and meteorology, coastal forms and processes, Arctic

Harold J. Retallick, Ph.D., Clark, 1950, Professor—soils, urban planning, U.S.S.R.

Donald C. Rundquist, Ph.D., Nebraska-Lincoln, 1977, Assistant Professor—urban, remote sensing, cartography

John F. Shroder, Jr., Ph.D., Utah, 1967, Associate Professor—geology, tropical and periglacial geomorphology, East Africa

Philip E. Vogel, Ph.D., Nebraska-Lincoln, 1960, Professor and Chairman—historical, agricultural, United States, history and philosophy of geography

One position to be announced—cultural, historical.

University of New Mexico

GEOGRAPHY DEPARTMENT

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 2

GRADUATE STUDENTS IN RESIDENCE: 15

NOT IN RESIDENCE: 3

CHAIRMAN: Richard E. Murphy

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Richard E. Murphy, Chairman, Geography Department, University of New Mexico, Albuquerque, New Mexico 87106
Telephone (505) 277-5041

PROGRAMS AND RESEARCH FACILITIES: The Department offers a considerable range of courses and thesis direction in systematic and regional geography. The fields with greatest depth are: climatology, cultural geography, environmental systems, geomorphology, remote sensing, Southwestern U.S., Latin America, Europe, Africa, and Southern Asia. The Department is an active participant in the University's strong program of Inter-American Affairs. Library holdings are good, particularly with respect to Arid Lands and Latin American materials.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates on the semester system.

Each application is reviewed individually, but in general an overall undergraduate average of near B and a full B average in undergraduate work in geography are necessary for admission to the program.

Thesis and non-thesis plans are offered. Candidates for the degree must pass a reading examination in a foreign language, or complete successfully two semesters of quantitative methods. Each candidate must pass an oral comprehensive examination.

Two teaching assistantships are available. The stipend is $3600. Usually one or two graduate assistantships are funded by outside projects. Application for other types of financial aid may be made to the Graduate Office.

STAFF:

Elinore M. Barrett, Ph.D., UC, Berkeley, 1970, Associate Professor—cultural-historical, Latin America

Iven Bennett, Ph.D., Boston, 1962, Professor—climatology, United States and Canada

Robert D. Campbell, Ph.D., Clark, 1949, Professor—environmental studies, history and philosophy of geography, psychological geography

Douglas H. Gordon, A.B.D., Hawaii, Assistant Professor—cultural, cartography, economic, East Asia

Stanley A. Morain, Ph.D., Kansas, 1970, Associate Professor—biogeography, geography of soils, remote sensing

Richard E. Murphy, Ph.D., Clark, 1957, Professor and Chairman—cultural, political, Europe

Rodman E. Snead, Ph.D., Louisiana State, 1963, Professor—geomorphology, map reading and air photo interpretation, Middle East, South Asia

Jerry L. Williams, Ph.D., Oregon, 1977, Assistant Professor—quantitative methods, economic, urban, Africa

University of North Carolina, Chapel Hill

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 2 M.A., 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**14 M.A.**	**8 Ph.D.**
NOT IN RESIDENCE:	**11 M.A.**	**11 Ph.D.**

CHAIRMAN: Richard J. Kopec

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Arthur J. Hawley, Graduate Admissions, Department of Geography, University of North Carolina, Chapel Hill, North Carolina 27514
Telephone (919) 933-8901

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography offers both M.A. and Ph.D. degrees. Intensive training is offered in urban-economic,

population-medical, physical environment and cartographic fields. Emphasis is placed on analysis of problems which have an applied aspect and consequently have implications for policy development. Programs are tailored to the student's interests and normally include courses in other departments such as economics, city and regional planning, sociology, political science, epidemiology, or environmental science and engineering.

Students have access to the facilities of the Institute for Research in Social Science, Institute of Latin American Studies, Institute of Government, Carolina Population Center, Institute of Statistics and the Water Resources Research Institute. Cooperative programs among the University of North Carolina, Duke University and North Carolina State University permit use of their combined library holdings, courses, and facilities. IBM System 360/75 and 370/165 computers are available through the Computation Center on campus and are linked to the Department by a Teletype 38/ASR remote terminal. Cartographic facilities include a computer graphics room equipped with a Bendix Datagrid Digitizer interfaced to a IBM 029 cardpunch machine. The nearby Research Triangle Park provides a unique complement of private and governmental research facilities.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates under the semester system. Several University fellowships are available for first-year students with superior academic records.

Departmental graduate assistantships are awarded on a competitive basis as are research assistantships provided by the various centers and institutes. These assistantships usually carry instate tuition. Departmental assistantships normally require the recipient to teach discussion sections of introductory courses. Part-time teaching of extension courses and in nearby colleges also may be available to qualified applicants.

Forms for admission to the Graduate School and for financial assistance are obtained directly from the Graduate School Admissions Office, Steele Building, University of North Carolina, Chapel Hill, NC 27514.

Two copies of all undergraduate and graduate transcripts and scores from the general aptitude section of the Graduate Record Examination are a part of the application. Prospective students should include a brief one- to two-page statement explaining their purposes and goals in undertaking graduate study in geography.

February 1st is the deadline for applications and notification of fellowships awards is sent out shortly thereafter. Applications for admission without aid will be considered until late spring.

STAFF:

David G. Basile, Ph.D., Columbia, 1964, Professor—economic resources, Latin America

Stephen S. Birdsall, Ph.D., Michigan State, 1968, Associate Professor—quantitative methods, Africa, transportation

Clyde E. Browning, Ph.D., Washington, 1958, Professor—urban, Mexico, research design

John D. Eyre, Ph.D., Michigan, 1951, Professor—political, Asia
John W. Florin, Ph.D., Penn State, 1971, Associate Professor—population, medical, historical Anglo-America
Arthur J. Hawley, Ph.D., Michigan, 1968, Assistant Professor—food resources, water resources, remote sensing, field methods
Richard J. Kopec, Ph.D., Clark, 1965, Professor and Chairman—climatology, cartography
Barry M. Moriarty, Ph.D., Michigan State, 1970, Associate Professor—urban, location theory, microspatial behavior
Peter J. Robinson, Ph.D., McMaster, 1972, Assistant Professor—meteorology, soils

University of North Carolina, Charlotte

DEPARTMENT OF GEOGRAPHY AND EARTH SCIENCES

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 8

GRADUATE STUDENTS IN RESIDENCE: 25

NOT IN RESIDENCE: 7

CHAIRMAN: Nelson R. Nunnally

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Graduate Advisory Committee, Department of Geography and Earth Sciences, University of North Carolina at Charlotte, UNCC Station, Charlotte, North Carolina 28223 Telephone (704) 597-2293

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography and Earth Sciences offers an M.A. degree that is strongly oriented to the application of geographic concepts and methods to the contemporary world. Applications of cartography, computerized graphics, quantitative methods and remote sensing are emphasized. Graduates of the program will be prepared to work as professionals in areas such as urban and regional planning research, locational analysis, community college teaching, marketing research, cartography, and environmental problems. Most students are placed with a local company or agency, in a directed internship in lieu of the traditional thesis research. Each internship student will complete a research project that will be the basis for a final thesis-type report.

Student programs are individually tailored and up to one-third of courses can be taken in related fields.

The Department is housed in the new McEniry Earth-Life Science Building.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates under the semester system. Teaching assistantships carry sti-

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pends of $3500 and remission of the nonresident portion of tuition is usually available. Part-time teaching is sometimes available as is employment in the departmental cartographic lab. Students on internships receive a stipend that is usually more than that paid to teaching assistants. Application forms should be obtained from the Director of Graduate Studies, University of North Carolina at Charlotte, UNCC Station, Charlotte, North Carolina 28223, or from the Department. An official transcript of all previous academic work is required plus scores from either (1) the general aptitude section of the Graduate Record Examination, or (2) the Miller Analogies Test and the Doppelt Mathematical Reasoning Examination. An undergraduate geography major is not required, but those students who are deficient in the basic concepts and methods of geography will be required to take corrective coursework.

Applications for teaching assistantships should be received by March 1. Awards are announced by about April 1. Applications for admission without aid are considered until one month prior to the beginning of any semester. Financial aid is sometimes available beginning in the Spring semester as well.

FULL-TIME AND PART-TIME STAFF:

John L. Bedford, Ph.D., Georgia, 1974, Assistant Professor—climatology, meteorology, remote sensing

John C. Catau, Ph.D., Michigan State, 1973, Assistant Professor—urban, social, population

James W. Clay, Ph.D., UNC Chapel Hill, 1969, Professor—resources, Latin America, environment, cartography

Edgar M. Hopkins, Ph.D., Virginia, 1974, Assistant Professor—sedimentary geology, coastal processes, oceanography

Gerald L. Ingalls, Ph.D., Michigan State, 1973, Assistant Professor—urban, political, social

Robert E. Lemmon, Ph.D., UNC Chapel Hill, 1973, Assistant Professor—petrology, geochemistry, structural geology

J. Dennis Lord, Ph.D., Georgia, 1970, Associate Professor—tertiary, primary, research methods

Nelson R. Nunnally, Ph.D., Illinois, 1965, Professor and Chairman—physical, quantitative methods, remote sensing

Douglas M. Orr, Jr., Ph.D., UNC Chapel Hill, 1968, Professor and Vice Chancellor for Student Affairs—political, cultural, Europe

Norman W. Schul, Ph.D., Syracuse, 1962, Professor and Dean, College of Social and Behavioral Sciences—Asia, economic

Jefferson L. Simpson, M.Ed., UNC Charlotte, 1974, Lecturer—cartography

Alfred W. Stuart, Ph.D., Ohio State, 1966, Professor—urban, manufacturing, polar regions

Wayne A. Walcott, Ph.D., Illinois, 1974, Assistant Professor and Internship Director—transportation, industrial, location theory

Michael P. Wilson, Ph.D. candidate, Syracuse, 1977, Lecturer—engineering geology, geophysics, glacial geomorphology, environmental geology

Additional faculty will be added for 1977-78.

University of North Dakota

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., M.Ed.

GRANTED 7/1/76–6/30/77: 3

GRADUATE STUDENTS IN RESIDENCE: 11

NOT IN RESIDENCE: 5

CHAIRMAN: William A. Dando

FOR CATALOG AND FURTHER INFORMATION WRITE TO: William A. Dando, Department of Geography, University of North Dakota, Grand Forks, North Dakota 58202
Telephone (701) 777-4246

PROGRAMS AND RESEARCH FACILITIES: Graduate programs available include the Master of Arts and Master of Science degrees (thesis required) and the Master of Education degree (non-thesis). Designed to prepare graduate students for doctoral study or for a professional level career in government, industry, or education, the geography curriculum is oriented to professional competence in the discipline. The graduate student in geography is expected to develop both a systematic and a regional interest, basic research tools and techniques, and a knowledge of geographic theory and concepts.

The Department of Geography operates the U.S. National Oceanographic and Atmospheric Service Weather Station at Grand Forks complete with evapotranspiration and meteorological instrumentation including air quality surveillance monitors. The Department maintains an extensive collection of climatic data for the Northern Plains region and is a depository for the Army Map Service. The departmental library contains a large topographic and wall map collection as well as selected books and periodicals. In addition to well-equipped cartographic, photographic and statistical facilities, the Department houses the University of North Dakota Institute for Remote Sensing.

Research reflecting the interests of individual faculty members includes systematic and topical aspects of geography. Technique interests include cartography, remote sensing and quantitative applications. Regional interests extend over much of the world although completed master's theses reflect an emphasis on the Northern Great Plains region.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The graduate program in geography at the University of North Dakota has been developed with the presumption that entering students normally would have successfully completed an undergraduate major and hold a Bachelor's degree in geography from a recognized institution. However, outstanding applicants are evaluated on an individual basis and those with limited backgrounds in geography but a distinguished record in another discipline may be accepted on a provi-

sional basis with the understanding that deficiencies would be remedied early in the graduate program. Admission to approved status for graduate work in geography requires a B average (3.00 based on A=4.00) in a minimum undergraduate preparation of twenty-four semester credits (at least twelve credits in geography and twelve credits from those cognate fields directly related to geography), or demonstrated proficiency in geography which would be assurance of success in graduate study.

STAFF:

Ralph C. Brown, Ph.D., Syracuse, 1964, Professor—economic, rural, population, political, map reading, North Polar Region, Africa, North America

Kang-tsung Chang, Ph.D., Clark, 1971, Associate Professor—cartography, spatial analysis, computer applications

William A. Dando, Ph.D., Minnesota, 1969, Associate Professor and Chairman—agriculture, field methods, physical, meteorology, climatology, remote sensing, U.S.S.R., Eastern Europe

Gary E. Johnson, Ph.D., Indiana State, 1974, Associate Professor—agriculture, land use, remote sensing, cartography, quantitative methods, economic, North America

Roland D. Mower, Ph.D., Kansas, 1971, Associate Professor—agriculture, land use, remote sensing, conservation, Latin America, cultural, physical, meteorology, climatology

Bernt L. Wills, Ph.D., Northwestern, 1953, Professor—Regional Geography: North Dakota, North America, Europe, Australia and New Zealand; teaching methods

Northeastern Illinois University

DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL STUDIES

DEGREES OFFERED: M.A. in Geography and Environmental Studies, and in Urban Land Use Planning

GRANTED 7/1/76–6/30/77: 12 Masters

GRADUATE STUDENTS IN RESIDENCE: 126

NOT IN RESIDENCE: 0

CHAIRMAN: C. Wallace Dierickx

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate School, N.I.U., 5500 No. St. Louis Avenue, Chicago, Illinois 60625

PROGRAMS AND RESEARCH FACILITIES: The department has a fully equipped cartography laboratory and a physical geography laboratory, both located in a new building. The department operates field camps when the demand is sufficient. Summer sessions often include 3-week field trips to foreign areas (Asia, Europe, Mexico).

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Students must fulfill the requirements for admission to the Graduate School, must have completed 15 hours of geography or may be admitted conditionally if they have completed at least 6 hours and must remove their deficiency. The M.A. degree requires 27 credits in geography and 6 in thesis. There is also an M.A. degree with a non-thesis option requiring 33 credits in geography and a research paper. For financial aid contact Dean of the Graduate School.

STAFF:

C. Wallace Dierickx, Ph.D., Northwestern, 1955, Professor and Chairman—economic, Africa, comparative world cultures

Robert F. Easton, M.A., Northwestern, 1967, Assistant Professor—physical, geomorphology, United States and Canada

William Howenstine, Ph.D., Michigan, 1959, Professor—conservation, resource planning, ecology

Ying-Cheng Kiang, Ph.D., Columbia, 1955, Professor—urban, Chicago, Asia

Karl M. Kriesel, Ph.D., Michigan, 1970, Associate Professor—cultural, political, scope and philosophy of geography, planning

William Millard, Ph.D., Minnesota, 1969, Associate Professor—recreation, population, field methods

Harold Mohamed, Ph.D., Northwestern, 1967, Professor—physical, institutional research, Middle East, transportation (on leave)

Musa Qutub, Ph.D., Iowa State, 1969, Associate Professor—physical, hydrology and water resources, environmental education

Barbara Winston, Ph.D., Northwestern, 1974, Associate Professor—student teaching, methods, physical

University of Northern Colorado

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A. in Social Science, D.A. (Doctor of Arts) in Geography

GRANTED 7/1/76–6/30/77: 6 M.A., 4 D.A.

GRADUATE STUDENTS IN RESIDENCE:	**5 M.A.**	**4 D.A.**
NOT IN RESIDENCE:	**6 M.A.**	**9 D.A.**

CHAIRMAN: Steven L. Scott

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Steven L. Scott, Chairman, Department of Geography, University of Northern Colorado, Greeley, Colorado 80639

PROGRAMS AND RESEARCH FACILITIES: The M.A. degree is granted upon the completion of 45 quarter hours of course work and an oral and written examination. The D.A. degree requires 72 hours of course work and a dissertation for which 18 hours of credit will be given. Concentration is in the geographic discipline but minor areas are allowed for related studies.

The department offers a wide range of courses with specialties in economic, urban, political and physical geography as well as in the regions of Latin America, Africa, and North America.

A new building on campus houses the geography department and offers excellent facilities in cartographic and physical geography laboratories. Additionally, the close proximity of Greeley to both Denver and Fort Collins allows for access to research material at the University of Colorado, University of Denver, and Colorado State University. Location 15 miles from the Front Range of the Rockies encourages extensive field study in the region.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates year-around on the quarter system. Students can enter the program at the beginning of any quarter. An appropriate baccalaureate degree from an accredited institution and a formal application to the Office of the Graduate School are required for admission. Students in need of financial assistance to meet educational expenses are invited to correspond with the Financial Aids Office on campus.

STAFF:

David B. Cole, Colorado, 1975, Assistant Professor—geographic education, social geography, population

Charles O. Collins, Ph.D., Kansas, 1973, Assistant Professor—Middle America, agriculture, cultural

John L. Dietz, Ph.D., Syracuse, 1970, Associate Professor—economic, cultural, Anglo-America, Great Plains

Richard H. Foster, Jr., Ph.D., UC, Berkeley, 1975, Assistant Professor—regional planning, transportation, North America

Kevin C. Kearns, Ph.D., St. Louis, 1966, Associate Professor—political, South America, Ireland

Paul L. Lehrer, Ph.D., Nebraska, 1962, Professor—physical, soils, Africa, western Europe

Richard K. Ormrod, Ph.D., Pennsylvania State, 1974, Assistant Professor—recreation, man-environment, Caribbean

Steven L. Scott, D.A., Northern Colorado, 1973, Associate Professor—cartography, Anglo-America, Great Plains

Northern Illinois University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S., C.A.S. (Certificate of Advanced Study)

GRANTED 7/1/76-6/30/77: 5 M.S.

GRADUATE STUDENTS FULL-TIME:	**19 M.S.**	**0 C.A.S.**
PART-TIME:	**12 M.S.**	**3 C.A.S.**

CHAIRMAN: Richard E. Dahlberg

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Prof. Richard E. Dahlberg, Chairman, Department of Geography, Northern Illinois University, De Kalb, Illinois 60115
Telephone (815) 753-0631

PROGRAMS AND RESEARCH FACILITIES: A student who elects a major in geography leading to the Master of Science degree arranges a program of courses totaling 30 semester hours in consultation with his adviser. This program will include a course in the history of geographic thought or a course in research design, and usually, a total of 20 semester hours of geography courses. Students with doctoral aspirations ordinarily will elect to write a thesis. Those electing the non-thesis option are required to write a research paper (Geog. 571, 3 semester hours). Additional requirements include: (1) passing a course in advanced quantitative techniques or passing a reading knowledge examination in a modern foreign language appropriate to his research interests or satisfactory completion of a course in advanced field methods (Geog. 565. This alternative is intended only for individuals teaching or planning to teach at the elementary or secondary levels), and (2) passing a comprehensive written examination.

Candidates for the C.A.S. must take 30 semester hours beyond the master's degree and write a thesis.

Special facilities include laboratories for studies in cartography, climatology, meteorology, remote sensing and soils. The Department has two computer terminals and a Wang 320E electronic calculator. The Cartographic Laboratory is equipped with a Calcomp 663 drum plotter, 770 tape drive, digitizer, Bausch and Lomb zoom transferscope, Balplex plotter, Kelsh plotter, Diatype phototypesetting unit, and a photographic darkroom. A student-run weather station is equipped with Service A teletype and National Weather facsimile circuits. Additional equipment includes a variety of air quality monitoring instruments, radar facsimile receiver, and a low-altitude tethered balloonsonde.The University IBM 360/67 computer is accessible to any graduate student. In addition to the facilities of a rapidly growing University library, a map library with holdings of 139,000 maps and over 900 atlases is conveniently located.

The Department of Geography has developed staff strength in four clusters: applied meteorology/climatology, environmental management, applied urban/economic, and area studies. Graduate program emphases include applied meteorology, agro-climatology, climatic change, and environmental quality, evaluation and management. Other examples are programs in planning that include health, transportation, housing, and the development of mapping systems for local and regional agencies. In addition, Geography participates in the programs of the Center for Southeast Asian Studies and the Center for Governmental Studies. The location of the University relative to the Chicago and Rockford metropolitan areas provides an impressive range of research opportunities in urban studies, planning, and environmental management.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: N.I.U. operates on a semester system. Admission as a graduate student requires a bachelor's degree from an accredited college or university, a GPA of at least 2.75 (4-

point system), and approval of the Department of Geography. Admission beyond the Master's degree requires a GPA of 3.2 or above and Department approval. All prospective graduate students must take the Graduate Record Examination (verbal and quantitative) prior to admission.

Assistantships and fellowships carry stipends up to $3420 for the academic year plus waiver of registration and out-of-state fees. Applications for graduate assistantships and fellowships for 1978-79 should be sent prior to February 15, 1978. Geography also offers a variety of internships with planning agencies in the northern Illinois area. These internships provide a stipend and, in some cases, waiver of tuition and summer support. Students interested in internships should direct inquiries to the Department Chairman. N.I.U. will not discriminate on the ground of the race, creed, color or national origin of any applicant.

STAFF:

Lloyd D. Black, Ph.D., Michigan, 1940, Professor—regional planning, economic development (foreign aid), applied geography (political and economic), Africa

Kenneth L. Bowden, M.S. Ed., Northern Illinois, 1957, Assistant Professor—hydrology, water resources, physical

Alan L. Cole, Ph.D., Michigan, 1962, Associate Professor—synoptic and applied meteorology, instrumentation and measurements

Richard E. Dahlberg, Ph.D., Wisconsin, 1959, Professor and Chairman—cartography

C. Daniel Dillman, Ph.D., Michigan, 1968, Professor—Latin America, rural landscapes, physical

B. Ross Guest, Ph.D., Chicago, 1951, Professor—environmental management, U.S.S.R., Anglo-America

Leonard J. Kouba, Ph.D., Boston, 1970, Associate Professor—conservation, physical, Africa

Cornelius J. Loeser, Ph.D., UCLA, 1965, Assistant Professor—cultural

Donald W. Maxfield, Ph.D., Iowa, 1967, Associate Professor—urban, transportation, remote sensing, location theory

A. Steven Messenger, Ph.D., Michigan State, 1966, Associate Professor—soils, forestry, biogeography

Clayton H. Reitan, Ph.D., Wisconsin, 1971, Assistant Professor—meteorology, climatology

Allen E. Staver, Ph.D., Wisconsin, 1969, Associate Professor—dynamic meteorology, numerical weather prediction

George P. Stevens, Ph.D., Wisconsin, 1962, Professor—political, history of geographic thought, Far East

Charles E. Trott, Ph.D., Ohio State, 1969, Associate Professor—urban, migration analysis, regional development

Jack R. Villmow, Ph.D., Wisconsin, 1955, Professor—climatology, meteorology, Eastern Europe, U.S.S.R.

University of Northern Iowa

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 2

GRADUATE STUDENTS IN RESIDENCE: 4

NOT IN RESIDENCE: 5

HEAD: Basheer K. Nijim

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Basheer K. Nijim, Head, Department of Geography, University of Northern Iowa, Cedar Falls, Iowa 50613
Telephone (319) 273-2772

PROGRAMS AND RESEARCH FACILITIES: The prospective student will especially benefit from the Department's offerings in planning and applied economic and urban geography, cartography, methodology (theoretical and quantitative), population studies, environmental and resource management, cultural, political, and rural geography. Regional emphases include Anglo-America, Latin America, East Asia, South Asia, the Middle East, and Europe.

The Department has separate labs for cartography, photography, and physical geography, and it has access to excellent computer facilities.

The program is flexible and provides extensive personal contact between the faculty and the students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester System. A graduate of an accredited undergraduate program may be admitted. A departmentally administered diagnostic examination is required of all new students. A minimum grade average of B must be maintained. Assistantships and other possibilities of financial support are available.

STAFF:

C. Murray Austin, Ph.D., Pennsylvania, 1971, Associate Professor—urban, economic, quantitative methods, theoretical, behavioral

Roy Chung, M.A., Wisconsin—Madison, 1955, Associate Professor—population, theoretical, quantitative, tropical regions

Robert E. Clark, Ph.D., Nebraska, 1974, Assistant Professor—cultural, rural settlement, historical geography of the United States, Europe, Anglo-America

Lowell R. Goodman, Ph.D., Illinois, 1975, Associate Professor—economic, transportation, industrial geography, cartography

John D. Gunter, Ph.D., Oklahoma, 1974, Assistant Professor—physical, resources, environmental geomorphology

Jonathan J. Lu, Ph.D., Washington, 1971, Associate Professor—agricultrual, economic, world food resources, East Asia, geography of the Bible

Basheer K. Nijim, Ph.D., Indiana, 1969, Professor—political, population, Middle East

Northern Michigan University

DEPARTMENT OF GEOGRAPHY, EARTH SCIENCE, AND CONSERVATION

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 5

GRADUATE STUDENTS IN RESIDENCE: 10

NOT IN RESIDENCE: 12

HEAD: John D. Hughes

FOR CATALOG AND INFORMATION WRITE TO: Chairman, Graduate Programs Committee, Department of Geography, Earth Science, and Conservation, Northern Michigan University, Marquette, Michigan 49855
Telephone (906) 227-2500

PROGRAMS AND RESEARCH FACILITIES: The program is designed to provide for a broad range of interests leading to employment in teaching, business, and government service. The department is housed in a new science building with excellent equipment. Available are a new growing library, field courses, computer facilities, and internships in planning.

ACADEMIC PLAN: Semester system plus intersession and summer program.
Admission Requirements: Bachelor's degree from accredited institution.
Financial Aid: Graduate Assistantships available.

STAFF:

Steven A. Carlson, Ph.D., Assistant Professor—rural land-use planning, biophysical analysis, resources
Fillmore C. F. Earney, Ph.D., Professor—minerals, U.S.S.R.
John P. Farrell, M.A., Professor—cartography, field techniques, planning
Ivan Fende, M.A., Assistant Professor—conservation
John D. Hughes, Ph.D., Professor—Great Lakes, geomorphology, shoreline processes
Alfred N. Joyal, M.S., Instructor—recreation, behavioral, quantitative methods
Richard W. Machowski, M.A., Associate Professor—education, polar
Alfred O. Niemi, Ed.D., Professor—conservation
Bernard C. Peters, Ph.D., Associate Professor—historical, environmental perception
Jarl Roine, M.A., Associate Professor—urban, economic, planning
Sten A. Taube, M.A., Assistant Professor—meteorology, economic, Latin America

Northwestern University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., Ph.D.

GRANTED 7/1/76–6/30/77: 3 Masters, 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 5 Masters 3 Ph.D.

NOT IN RESIDENCE: 0 Masters 8 Ph.D.

CHAIRMAN: Michael F. Dacey

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor John C. Hudson, Department of Geography, Northwestern University, Evanston, Illinois 60201 Telephone (312) 492-7030

PROGRAMS AND RESEARCH FACILITIES: Since the early sixties, geography at Northwestern has emphasized theoretical and mathematical approaches. Although staff and students pursue research on a variety of topics, this orientation remains a basic feature of the graduate program. All graduate students are required to complete undergraduate-level mathematics courses through multivariable calculus, linear algebra, probability and statistics. Additional course work in mathematics is recommended for students planning to pursue research in mathematical geography. Courses and seminars in the various areas of faculty specialization listed below are augmented with substantial course work in other departments and programs such as economics, industrial engineering, urban systems engineering, management and transportation. Programs of study are worked out individually for each student and permit flexibility within the basic focus of the department.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Admission is limited to the Fall quarter, which begins in late September. The basic Ph.D. program consists of a four-year sequence of courses, seminars and dissertation research. Students making satisfactory progress in the program are awarded a Masters degree (without thesis) after one year of graduate work. Successful defense of an evaluation paper and a dissertation proposal, normally in the third year, admits the student to Ph.D. candidacy. Departmental financial support for the first three years of the program is available to qualified students; the stipend for 1977-78 is $3000 plus full remission of tuition ($4290). All students participate both as teaching and research assistants. Applicants seeking financial support are encouraged to submit GRE scores. There is no terminal Masters degree program.

STAFF:

Gerald M. Barber, Ph.D., Toronto, 1973, Assistant Professor—transportation, location analysis, urban

Robert S. Bednarz, Ph.D., Chicago, 1974, Assistant Professor—urban, computer applications, economic

Michael F. Dacey, Ph.D., Washington, 1960, Professor of Geography and Geological Sciences—mathematical geography, spatial statistics, location theory

Edward B. Espenshade, Jr., Ph.D., Chicago, 1943, Professor—cartography, Asia, natural environment

Gary L. Gaile, Ph.D., UCLA, 1976, Assistant Professor—economic, Africa

John C. Hudson, Ph.D., Iowa, 1967, Professor—settlement, diffusion models, North America

Patrick M. O'Sullivan, Ph.D., London School of Economics, 1967, Associate Professor—transportation, economic (also Transportation Center)

David Woodward, Ph.D., Wisconsin, 1970, Associate Professor (Newberry Library)

Ohio State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 10 M.A., 5 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**16 M.A.**	**18 Ph.D.**
NOT IN RESIDENCE:	**1 M.A.**	**12 Ph.D.**

CHAIRMAN: John N. Rayner

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Howard L. Gauthier, 1775 College Road, Columbus, Ohio 43210
Telephone (614) 422-2514

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography at the Ohio State University offers opportunities for graduate study and research on problems involving spatial organization. Modern theoretical approaches to location analysis, urban study, transportation, political geography, social-population geography, resource analysis, climatology, and the geography of development with an emphasis on Latin America and the U.S.S.R. are offered.

Requirements for the Master's degree are:

1. The completion of a group of four core seminars emphasizing the basic theoretical understandings and research skills necessary to the professional geographer;

2. completion of a seminar paper deemed acceptable by a departmental committee;

3. completion of a comprehensive examination stressing one of the major substantive fields.

Requirements for the Ph.D. degree are:

1. Completion of a seminar dealing with concepts regarding the nature, scope, and methodology of modern geography;

2. completion of a general oral and written examination on a major and minor field of geographic specialization, usually involving work both within geography and related fields;

3. completion of a Ph.D. dissertation;

4. foreign language competence only if required by adviser for candidates carrying on foreign area study.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Quarter System. Fellowships offered include: University Fellowships, Polar Studies Fellowship, and Slavic and East European Language and Area Center Fellowships. Teaching associateships are available as are some research assistantships.

STAFF:

John Arnfield, Ph.D., McMaster, 1973, Associate Professor—climatology

William J. Bradfield, M.A., Kent State, 1966, Instructor—(OSU Regional Campus, Mansfield, Ohio)

Lawrence A. Brown, Ph.D., Northwestern, 1966, Professor—social, population, urban

S. Earl Brown, Ph.D., Wisconsin, 1957, Professor—locational analysis, development (Europe)

Emilio Casetti, Ph.D., Northwestern, 1964, Professor—quantitative analysis, population, economic development

Victor Colombini, Ph.D., Boston, 1961, Associate Professor—(OSU Regional Campus, Lima, Ohio)

Kevin R. Cox, Ph.D., Illinois, 1966, Professor—political, social, urban

DeWitt Davis, Jr., Ph.D., Lund, 1972, Assistant Professor—social, urban, population

George J. Demko, Ph.D., Pennsylvania State, 1964, Professor—population, development (U.S.S.R.)

David R. DiMartino, Ph.D., Syracuse, 1975, Assistant Professor—(OSU Regional Campus, Marion, Ohio)

Howard L. Gauthier, Ph.D., Northwestern, 1966, Professor—transportation, urban, regional development

Vera L. Herman, M.A., Ohio State, 1947, Instructor—physical, world regional

Henry I. Hunker, Ph.D., Ohio State, 1953, Professor—urban, industrial, resource analysis

Robert D. Klingensmith, Ph.D., Southern Illinois, 1975, Assistant Professor—(OSU Regional Campus, Newark, Ohio)

Harold Moellering, Ph.D., Michigan, 1973, Assistant Professor—cartography, geographic information system, locational analysis

George P. Patten, Ph.D., Northwestern, 1955, Professor—tropical agriculture, development (Latin America)

John N. Rayner, Ph.D., Canterbury, 1965, Professor and Chairman—climatology, quantitative analysis

R. Keith Semple, Ph.D., Ohio State, 1969, Professor—quantitative analysis, development, locational analysis

Henry J. Steward, Ph.D., Wales, 1972, Assistant Professor (Geodetic Science)—cartography (on leave, 1977-78)

Edward J. Taaffe, Ph.D., Chicago, 1952, Professor—transportation, geographic thought, development (North America)

Ohio University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 3

GRADUATE STUDENTS IN RESIDENCE: 12

CHAIRMAN: Bob J. Walter

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Graduate Committee, Department of Geography, Ohio University, Porter Hall, Athens, Ohio 45701
Telephone (614) 594-6502 or 594-5555

PROGRAMS AND RESEARCH FACILITIES: The Geography Department grants both the M.A. and M.S. degrees. The student may select one of two programs to obtain either degree: a thesis or a non-thesis track. The thesis track allows for some research specialization and usually requires two years to complete, and is designed for those continuing to the doctoral level. The non-thesis track allows for broad geographic training via coursework, in areas of emphasis: area studies, cultural, physical, resource management, and urban. There is a two-part comprehensive exam for this program.

In addition, Ohio University offers excellent opportunities for interdisciplinary studies, such as international studies and environmental science.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:
Academic Plan: Quarter System.
Admission Requirements: Bachelor's degree with a minimum grade point average of 2.75 (4.0 scale).
Financial Aid: Graduate teaching assistantships of $2800 for nine months plus tuition fee waivers. Appointment includes fee waivers for summer sessions before and after the term of employment. Financial assistance deadline is March 1.

STAFF:

Nancy R. Bain, Ph.D., Minnesota, 1973, Assistant Professor—population, economic, urban

Frank E. Bernard, Ph.D., Wisconsin, 1968, Associate Professor—cultural, resources, Africa

Hubert L. Bloemer, Ph.D., Union, 1977, Assistant Professor—transportation, cartography

James L. Cobban, Ph.D., UC, Berkeley, 1970, Associate Professor—cultural, Southeast Asia

Ronald H. Isaac, Ph.D., Southern Illinois, 1974, Assistant Professor—bioclimatology, quantitative methods, computer mapping

Bob J. Walter, Ph.D., Wisconsin, 1968, Associate Professor—political, geographic thought, Africa

Hubert G. H. Wilhelm, Ph.D., Louisiana State, 1968, Professor—settlement, historical, E. Anglo-America

Lynden S. Williams, Ph.D., Kansas, 1973, Assistant Professor—population, Latin America, urban

Oklahoma State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S., Ed.D. in cooperation with the College of Education

GRANTED 7/1/76–6/30/77: 5 Masters, 2 Ed.D.

GRADUATE STUDENTS IN RESIDENCE: 25 Masters 3 Ed.D.

NOT IN RESIDENCE: 6 Masters 3 Ed.D.

HEAD: John F. Rooney, Jr.

FOR CATALOG AND FURTHER INFORMATION WRITE TO: John F. Rooney, Jr., Department of Geography, Oklahoma State University, Stillwater, Oklahoma 74074
Telephone (405) 624-6248

PROGRAMS AND RESEARCH FACILITIES: Programs of study lead to the M.S. degree, and under certain circumstances, to the Ed.D. Emphasis on the economic, urban, and social aspects of the field, with interdisciplinary work in resource management, environmental science, recreation, urban studies, regional analysis, and community development, strongly encouraged. Plans of study may require research reports or a thesis, as well as competence in basic quantitative methods. The Department has a cartographic service and a laboratory; the University Library includes a map collection, and the facilities of the University Computer Center are utilized extensively by the graduate students. An IBM 370/158 with peripheral equipment including a plotter, plus numerous software packages, are available.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system, including summer. Undergraduate grade point average of 2.7 (4.0 system) or better normally required for admission. Teaching and research assistantships, planning internships and other stipends range from $2300 to $4000 per year and include remission of out-of-state tuition.

STAFF:

George O. Carney, Ph.D., (History), Oklahoma State, 1971, Assistant Professor—historical, cultural, United States

Jerry D. Croft, Ed.D., Tulsa, 1971, Assistant Professor—geographic education, Europe

Paul I. Hagle, Ph.D., Iowa, 1973, Assistant Professor and Extension Economic Geography—economic, interaction theory, housing, Latin America

Keith D. Harries, Ph.D., UCLA, 1968, Associate Professor—urban, social, crime, Europe

Richard D. Hecock, Ph.D., Clark, 1966, Professor—outdoor recreation, resource management, Asia

Herbert Kershaw, M.S., Oregon State, 1960, Assistant Professor—meteorology, climatology, televised instruction

Gayle Maxwell, M.S., Georgia, 1964, Assistant Staff Cartographer

Jack E. Moore, M.S., Oklahoma State, 1958, Assistant Professor—physical, political, Latin America

Robert E. Norris, Ph.D., Iowa, 1970, Associate Professor and Coordinator, Geography Extension—political, quantitative methods

John F. Rooney, Jr., Ph.D., Clark, 1966, Professor and Head—sport and recreation, resource management, United States

James E. Stine, Ph.D. candidate, Washington, Assistant Professor and Director, OSU Cartography Service—economic, urban systems, location and interaction theory, cartography

Steven W. Tweedie, Ph.D., Syracuse, 1969, Assistant Professor—social, public policy, quantitative methods

Donald Wade, M.S., Northern Iowa, 1976, Staff Cartographer

University of Oklahoma

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D., Ed.D.

GRANTED 7/1/76–6/30/77: 4 M.A., 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**21 M.A.**	**20 Ph.D.**	**0 Ed.D.**
NOT IN RESIDENCE:	**5 M.A.**	**19 Ph.D.**	**0 Ed.D.**

CHAIRMAN: James R. Bohland

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Christopher J. Smith, Department of Geography, University of Oklahoma, Norman, Oklahoma 73019 Telephone (405) 325-5325

PROGRAMS AND RESEARCH FACILITIES: Individual graduate programs are tailored to fit the interests and needs of each student as a unique person. There are particular opportunities for work in three fields of special interest:

Spatial Decision Making: Locational decision making by government bodies, businesses, social groups, and individuals; the effects of such decisions; the movement of people, goods, and ideas; connections with urban and regional development, the social and cultural geography of ethnic groups, trends in population and land use; applications in fields such as environmental management, recreation, health care, housing, education, transportation, marketing, and energy.

Environmental Impact: Assessment of hazards, needs, and possibilities in environmental management; the roles of cultural differences and technological alternatives; the influence of information, locational choice, boundaries; applications in such fields as weather modification, health care, population policy, water resources, waste disposal, transportation, recreation, and energy.

Place and Human Identity: Location, experience, and acculturation; location and access to opportunities; place, status, and personal influence; the roles of information and mobility; connections, with development planning and public policy; applications in such fields as population, housing, education, transportation, and environmental management.

Students have a chance to relate to a variety of strong University programs: courses and faculty in other departments (frequently with regional and city planning, law, history, geology, economics, sociology, anthropology, marketing, botany, and civil engineering), interdisciplinary programs (such as the Science and Public Policy Program and the Southwest Center for Human Relations Studies), and research offices (such as the Bureau of Government Research, the Bureau for Business and Economic Research, the Bureau of Water and Environmental Resources Research, the Oklahoma Geological Survey, and the Oklahoma Biological Survey). Close connections are maintained with the Department of Geography at Oklahoma State University, which offers complementary activities and opportunities.

The Department is housed in the new Social Sciences Center. Its facilities include a full-service remote computing terminal in the building, linked to the university IBM 370-158 computer; two TSO lines; Tektronix 4010 and 4631; two 30-inch Calcomp plotters; a digitizer; a darkroom and cartographic production facilities, including a Brown 400 copy camera; and collections of maps, air photos, and other imagery.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates with two semesters and one eight-week summer session. Admission decisions are based on an evaluation of transcripts, letters of recommendation, GRE aptitude scores, and any other material that an applicant wishes

to be considered. Graduate assistantships and other kinds of financial aid are available each year.

STAFF:

Marvin W. Baker, Jr., Ph.D., Syracuse, 1970, Associate Professor—urban, environmental policy, Latin America, Anglo-America

Charles E. Barb, Jr., Ph.D., Washington, 1974, Associate Professor of Civil Engineering and Geography—urban information systems, geocoding, computer graphics, urban transportation

James R. Bohland, Ph.D., Georgia, 1970, Associate Professor—population and migration, social settlement, computer applications

K. Patricia Burnett, Ph.D., Tasmania, 1969, Associate Professor—urban travel behavior, behavioral and social, geographic thought

L. Dee Fink, Ph.D., Chicago, 1976, Visiting Assistant Professor of Geography and Education—geographic education, environmental perception

James M. Goodman, Ph.D., Northwestern, 1963, Associate Professor—physical environments, geomorphology, Native American resources and land use in the American Southwest

Robert Q. Hanham, Ph.D., Ohio State, 1973, Assistant Professor—diffusion processes, spatial behavior, urban and regional models, quantitative methods

William C. Johnson, Ph.D., Wisconsin, 1976, Assistant Professor—geomorphology, paleoclimatology, paleohydrology, environmental impacts, field methods

Michael Libbee, Ph.D., Syracuse, 1975, Assistant Professor of Geography and Education—geographic education, research methods, cultural

Edward J. Malecki, Jr., Ph.D., Ohio State, 1975, Assistant Professor—urban systems, diffusion, urban and regional development, research methods

Richard L. Nostrand, Ph.D., UCLA, 1968, Associate Professor—historical, social and cultural geography of ethnic groups, Anglo-America, the American Southwest

Christopher J. Smith, Ph.D., Michigan, 1974, Assistant Professor—behavioral and social, mental health and well-being, locational conflicts, "sense of place," research methods

Stephen M. Sutherland, Ph.D., Illinois, 1963, Associate Professor—climatic change, weather modification, physical

Gary L. Thompson, Ph.D., Michigan State, 1968, Associate Professor—economic, transportation, regional analysis, Soviet Union

B. L. Turner II, Ph.D., Wisconsin, 1974, Assistant Professor—cultural, tropical ecologies, Latin America, explanation in geography, early civilizations

Thomas J. Wilbanks, Ph.D., Syracuse, 1969, Associate Professor—public policy, energy, regional development, locational analysis, research methods

Oregon College of Education

DEPARTMENT OF SOCIAL SCIENCE

DEGREES OFFERED: M.S. in Education; M.A. in Teaching; and M.A./M.S. in Interdisciplinary Studies

GRANTED 7/1/76–6/30/77: _____

CHAIRMAN: Paul F. Griffin

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Paul F. Griffin, Department of Social Science, Oregon College of Education, Monmouth, Oregon 97361
Telephone (503) 838-1220, ext. 288

PROGRAMS AND RESEARCH FACILITIES: Oregon College of Education is a small liberal arts institution that historically has emphasized teacher preparation and research in teaching. For many years, graduate training in geography has been offered in two 45 quarter-hour programs. The Master of Science in Education and Master of Arts in Teaching are, respectively, learner- and discipline-responsive courses of study directed to exceptional competence in geographic education. In 1974, however, the 45 quarter-hour M.A./M.S. in Interdisciplinary Studies was instituted to provide for individualized program designs that integrate two to four subject areas with geography for career-oriented goals customarily outside of professional education. Opportunities in this program, through formal coursework and special individual study, are legion.

Master's degree candidates may choose thesis or non-thesis options in their programs of study.

The Department's nine geographers provide a full range of regional and topical specialties. Extensive collections of maps and photographs are available. A cartography laboratory and computer hookups are accessible to graduate students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS AND FINANCIAL AID: The academic year consists of three quarters plus a summer session. Admission is based upon the bachelor's degree from a four-year accredited institution and a grade-point average of 2.75 or better. Graduate students are eligible for National Direct Student Loans (maximum of $300 per quarter and $1200 per year), Guaranteed Student Loans (maximum $833 per quarter and $2500 per year), and the College Work-Study Program.

STAFF:

L. Carl Brandhorst, Ph.D., Nebraska, Associate Professor
Ronald L. Chatham, Ph.D., Stanford, Professor
James W. Gallagher, Ph.D., Illinois, Professor
Peter V. Greco, Ed.D., Columbia, Professor
Paul F. Griffin, Ph.D., Columbia, Professor

Kenneth D. Jensen, Ph.D., Michigan State, Assistant Professor
Denis M. Moran, Ph.D., Oregon, Associate Professor
Jay B. Vanderford, M.A.T., Oregon College of Education, Assistant Professor
Wayne R. White, Ph.D., Oregon, Associate Professor

Oregon State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S., M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 17 Masters, 4 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 47 Masters 23 Ph.D.
NOT IN RESIDENCE: 0 Masters 4 Ph.D.

CHAIRMAN: Richard M. Highsmith, Jr.

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Admissions Office or Department of Geography, Oregon State University, Corvallis, Oregon 97331

PROGRAMS AND RESEARCH FACILITIES: The Department specializes in the fields of resource geography, environmental, and physical geography. The typical graduate program contains a core major, research methodology, and a related minor. One language is required for the Ph.D. Minors may be partly or wholly in a second field of geography (including economic geography) or may be integrated from the wide range of relevant disciplines and fields represented on this land grant university campus. Master's degree candidates may elect either a thesis or a non-thesis option.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Admission requirements:* 3.00 GPA in last two undergraduate years and three letters of recommendation. Quarter system.
Financial aid: Teaching and research assistantships.

STAFF:
Robert E. Frenkel, Ph.D., UC, Berkeley—biogeography, conservation
Richard M. Highsmith, Jr., Ph.D., Washington—agricultural, land resources use
J. Granville Jensen, Ph.D., Clark, Professor Emeritus—biotic resources, resource geography of Mexico
A. Jon Kimerling, Ph.D., Wisconsin—cartography, remote sensing
James F. Lahey, Ph.D., Wisconsin—climatology, air photo interpretation, remote sensing
Thomas J. Maresh, Ph.D., Illinois—mineral, industrial
Gordon E. Matzke, Ph.D., Syracuse—biotic resources, zoogeography, conservation
Keith W. Muckleston, Ph.D., Washington—water resources

Mary Lee Nolan, Ph.D., Texas A. & M.—responses to hazards, recreation
Ray M. Northam, Ph.D., Northwestern—urban, transportation
James R. Pease, Ph.D., Massachusetts—land use planning
Charles L. Rosenfeld, Ph.D., Pittsburgh—applied physical geography, hydrology, geomorphology

University of Oregon

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76-6/30/77: 4 M.A., 5 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 17 M.A. 11 Ph.D.

NOT IN RESIDENCE: 5 M.A. 12 Ph.D.

HEAD: Everett G. Smith, Jr.

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Administrative Assistant, Department of Geography, University of Oregon, Eugene, Oregon 97403

PROGRAMS AND RESEARCH FACILITIES: Staff interests in advanced graduate training include physical, cultural, historical, and urban geography, Latin America, Africa, Europe, and North America. Strong emphasis is placed on field research.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University of Oregon is on the quarter system. The Department selects for admission on the basis of letters of recommendation, grade point average, and scores on the Graduate Record Examination. Graduate teaching fellowships are available ($2800 to $3500 for 1/3 time). Fellows pay only nominal tuition, other graduate students only in-state tuition.

STAFF:

S. N. Dicken, Ph.D., UC, Berkeley, 1931, Professor Emeritus—North America, Oregon, coastal geomorphology
C. L. Johannessen, Ph.D., UC, Berkeley, 1959, Professor—plant geography, Latin America
W. G. Loy, Ph.D., Minnesota, 1967, Associate Professor—cartography, photo interpretation, geomorphology
J. P. Mrowka, Ph.D., UCLA, 1974, Assistant Professor—geomorphology, hydrology, Latin America
C. P. Patton, Ph.D., UC, Berkeley, 1953, Professor—cultural, climatology, Europe

E. T. Price, Ph.D., UC, Berkeley, 1950, Professor—cultural, historical, North America

G. H. Searl, M.S., Oregon, 1966, Adjunct Assistant Professor—geographic education, Oregon

E. G. Smith, Jr., Ph.D., Minnesota, 1962, Associate Professor—urban, social, North America

A. W. Urquhart, Ph.D., UC, Berkeley, 1962, Professor—cultural, Africa

R. Wixman, Ph.D., Chicago, 1976, Assistant Professor—U.S.S.R., East Europe, cultural

The Pennsylvania State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S., Ph.D.

GRANTED 7/1/76–6/30/77: 9 Masters, 1 D.Ed., 6 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**22 Masters**	**14 Ph.D.**
NOT IN RESIDENCE:	**2 Masters**	**10 Ph.D.**

HEAD: Ronald F. Abler

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Ronald Abler, Head, Department of Geography, 302 Walker Building, University Park, Pennsylvania 16802
Telephone (814) 865-3433

PROGRAMS AND RESEARCH FACILITIES: Individual graduate programs are built around fifteen research interests:

American Landscape: Visual quality of the American environment; origin and character of differences in landscape from place to place; symbolism of natural and artificial landscapes in American culture, past, present, and future.

Behavioral Geography: Environmental cognition; cognitive mapping; place preferences of inter-regional migrants; residential site selection and intra-urban migration; micro-spatial behavior of individuals and groups.

Communications Systems: Geographical organization and social impacts of postal, telephonic, and cable television networks; national and international information flows; effects of communications media on culture.

Cultural Geography of Anglo-America: Spatial patterns in American life, material and non-material, past and present; problems in general cultural theory with special reference to northeastern United States.

Cultural Geography of Southeast Asia: Population problems; mobility and migration; economic development; transportation; urbanization.

Environmental Pollution Control: The Department of Geography participates in Penn State's master's program in environmental pollution control; numerous options exist for individual specialization.

Geographic Analysis: Cartography; computer modeling; computer graphics and data display; structure and properties of geographic data systems; use of normative models in research design; statistical methods and applications; simulation.

Geography of the Developing World: Problems of regional development in Africa, Latin America, Southeast Asia, southern Europe, economic geography of South Asia, radical theories of economic development.

Geographic Theory: Structure of geographic inquiry; nature of the science of geography; geographic thought within the history of science; systems theory and location theory.

Human Geography of the U.S.S.R.: Problems of demographic and economic development in the Soviet Union (in cooperation with the University's Soviet Language and Area Center).

Human Use of Environment: Structure and dynamics of man-environment systems; cultural ecology; resource assessment and allocation; land use management; agricultural systems and development in the Third World; medical geography.

Industrial Location: Industrial location theory; spatial analysis of manufacturing systems; problems of industrial development; factors of localization of manufacturing.

Macro-spatial Analysis in Regional and Urban Development: Public policy and location of public and private facilities; regional economic analysis; metropolitan spatial structure; transportation and modernization processes; space-distorting properties of communications systems; spatial diffusion processes; regional and urban planning.

Population Problems: Evolution of present spatial patterns of population growth and characteristics; population problems in developing societies; population distribution and redistribution, emphasis on United States.

Regional Economic Development: Problems of regional income inequalities within the developed nations; planning for optimal socio-economic growth within the context of a multi-regional system.

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The Department has no specific course requirements. Programs of study are arranged with advisors and committees to suit individual needs and professional aims. A thesis, or two research papers, is required for the M.S. degree; usually well-qualified students entering with a Bachelor's degree may bypass the M.S. degree and work directly for the doctorate.

The Department occupies an air-conditioned building with excellent facilities on a beautiful campus. Available facilities include several computer systems: IBM 370/168, Adage AGT 30, PDP-10, etc.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University follows the term system. Each term (fall, winter, spring, and summer) is ten weeks. Applicants must have maintained during their junior and senior years overall grade point averages equivalent to 3.0 (A = 4.0) for admission. GRE scores must be submitted with application materials. The Geography Department

offers on a competitive basis a number of teaching and research assistantships each year. Half-time appointments carry a stipend of $3456 for three terms plus a grant-in-aid to cover all tuition fees for the academic year. Other awards include: grants-in-aid; University Fellowships.

STAFF:

Ronald F. Abler, Ph.D., Minnesota, 1968, Associate Professor—history of geography, geography of communications systems, urban, cartography

Roger M. Downs, Ph.D., Bristol, 1970, Associate Professor—behavioral, environmental cognition

Rodney A. Erickson, Ph.D., Washington, 1973, Assistant Professor—economic, urban, regional economic development

Thomas Falk, Ph.D., Stockholm School of Economics, 1976, Visiting Associate Professor—economic, urban

Cecil W. Goodwin, Ph.D., Michigan, 1976, Assistant Professor—physical, man-environment relations

Peter R. Gould, Ph.D., Northwestern, 1960, Professor—methodology, human

C. Gregory Knight, Ph.D., Minnesota, 1970, Associate Professor—man-environment relations, cultural ecology, Africa (on leave, 1977-78)

Peirce F. Lewis, Ph.D., Michigan, 1958, Professor—political, historical geography of North America, American landscape

E. Willard Miller, Ph.D., Ohio State, 1941, Professor—minerals, geography of manufacturing

Allan L. Rodgers, Ph.D., Wisconsin, 1950, Professor—industrial location, economic geography of the U.S.S.R. and Italy, regional economic development

Paul D. Simkins, Ph.D., Wisconsin, 1961, Professor—population, migration, Latin America

Frederick L. Wernstedt, Ph.D., UCLA, 1953, Professor—Southeast Asia, tropical, climatology

Anthony V. Williams, Ph.D., Michigan State, 1968, Associate Professor—human, computer applications, quantitative techniques

Lakshman Yapa, Ph.D. Syracuse, 1969, Assistant Professor—economic development, third world, political economy, spatial diffusion, quantitative methods, South Asia

Wilbur Zelinsky, Ph.D., UC, Berkeley, 1953, Professor—cultural, historical, population, North America

University of Pittsburgh

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 4 M.A., 5 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 21 M.A. 17 Ph.D.

NOT IN RESIDENCE: 6 M.A. 4 Ph.D.

CHAIRMAN: Hibberd V.B. Kline, Jr.

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Department of Geography, 713 Mervis Hall, University of Pittsburgh, Pittsburgh, Pennsylvania 15260 Telephone (412) 624–5508

PROGRAMS AND RESEARCH FACILITIES: The Department offers a broad array of courses and seminars carrying graduate credit. These are arranged in programs which relate to faculty specialties within the Department, and draw to varying degrees upon the resources of other social science departments and graduate units throughout the University. The following programs may be undertaken:

Departmental Programs	*Cognate Graduate Units Available for Interdisciplinary Study*
1. Urban Geography	University Center for Urban Research; Graduate School of Public and International Affairs (GSPIA)—includes Department of Urban Affairs; Graduate School of Public Health (GSPH); other social science departments
2. Economic Geography	GSPIA—includes Department of Economic and Social Development; Department of Economics
3. Transportation Geography	Department of Environmental Engineering; Graduate School of Business
4. Cultural Geography	Departments of Anthropology, History, and Sociology
5. Physical Geography	Department of Earth and Planetary Science; Department of Biology; Environmental Engineering; GSPH
6. Regional Geography (Latin America, East Asia, tropical Africa)	University Center of International Studies and sub-centers

Student participation in the formulation and improvement of existing programs is encouraged.

Emphasis is placed on quantitative analysis as well as on the traditional methodologies. Students have full access to the DEC10 batch and time-sharing system of the Computer Center, to computer terminals and data resources of the Social

Science Computer Research Institute, and to calculators in the department. The Department is equipped for instruction in cartography, photo-interpretation, laboratory methods in experimental geomorphic processes, and field methods. In addition to in-University programs, the Department enjoys cooperative arrangements with several research corporations.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University of Pittsburgh is on a three-term academic calendar. The Fall term begins after Labor Day and ends before Christmas; the Winter term begins after the New Year and ends at the third week in April. The Spring term begins before the first of May and ends in mid-August. In the Spring term, courses are also given in a Spring and Summer Session, each seven and one-half weeks long. Since the geography program covers all three terms, the student has the option of the terms in which he/she will earn residence and make progress toward his/her degree objective.

Admission requirements for full graduate standing are a "B" average at an accredited undergraduate institution, or a Master's degree from a recognized department or institution. Transcripts of all previous study and letters of recommendation are also required. There are no limitations as to subject matter previously studied.

The requirements for the M.A. degree include two terms of full residence, which may be earned through part-time attendance, and a comprehensive examination. Students who seek a degree through the applications-oriented program must in addition take certain courses and present seminar or independent study papers for evaluation. Students in the academically-oriented program present and defend a thesis.

Requirements for the Ph.D. degree include six terms of full residence beyond the baccalaureate degree. Two terms of residence may be transferred from another institution with a Master's degree or its equivalent, and some additional residence may be granted by transfer under appropriate circumstances. At least two terms of residence must be earned by full-time attendance. Other requirements for the Ph.D. are a preliminary examination given early in graduate study in the department; mastery of research tools, which may include a foreign language or languages, is arranged on an individual basis between the student and his/her faculty advisor, subject to the approval of the faculty; a comprehensive examination; an oral overview of the dissertation proposal; and finally, an oral defense of the dissertation.

A variety of financial assistance is available, including departmental teaching fellowships, Mellon and other University fellowships, and scholarships. Pennsylvania residents are entitled to a tuition subsidy. Many of these stipends and grants provide support for all three terms of the academic year. Part-time academic employment often is available in the Advising Center for the College of Arts and Sciences, in the School of General Studies (evening), at the regional campuses of the University, and in other institutions in the Pittsburgh area.

STAFF:

Jacob Aghassy, Ph.D., Hebrew University, 1967, Associate Professor—physical, field methods

Chiao-min Hsieh, Ph.D., Syracuse, 1953, Professor—cultural, East Asia
Karel J. Kansky, Ph.D., Chicago, 1963, Associate Professor—transportation, research methodology, cartography
Thomas F. Kelsey, Ph.D., Florida, 1972, Assistant Professor—economic, tropical Brazil, Hispanic America
Hibberd V. B. Kline, Jr., Ph.D., Wisconsin, 1941, Professor and Chairman—physical, Africa, cartography, air photo interpretation/remote sensing
Leonard I. Kuntz, Ph.D., Louisiana State, 1970, Associate Professor—urban
Vaughn Lueck, Ph.D., Minnesota, 1974, Assistant Professor—urban, social, behavioral
Mary Viola Phillips, Ed.D., Columbia, 1964, Professor—historical, North America
Oswald Schmidt, M.Ed., Pennsylvania State, 1940, Associate Professor—population, South Asia
William J. Smole, Ph.D., Chicago, 1964, Professor—cultural, Latin America
Sandra J. Vickers, Ph.D., Indiana, 1976, Assistant Professor—economic, urban

Portland State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A./M.S., M.A.T./M.S.T.

GRANTED 7/1/76–6/30/77: 3

GRADUATE STUDENTS IN RESIDENCE: 20

NOT IN RESIDENCE: 19

CHAIRMAN: D. R. Lycan

FOR FURTHER INFORMATION WRITE TO: Geography Department, Portland State University, P.O. Box 751, Portland, Oregon 97207
Telephone (503) 229-3916

PROGRAMS AND RESEARCH FACILITIES: The Geography Department offers the degrees of Master of Arts, Master of Science, Master of Arts in Teaching, and Master of Science in Teaching. In addition to general pre-doctoral study, other programs are offered for students who intend to enter the fields of urban and regional planning, environmental policy formulation, and natural resources management.

The M.A.T. and M.S.T. degrees offer advanced training for high school teachers of geography and social studies.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: For admission to graduate study a student normally should have completed the minimum preparation for an undergraduate major in geography with a 3.0 average in all upper division work, in addition to meeting University admission requirements. Students with majors in other fields are encouraged, if they can

demonstrate ability, to pursue graduate work in geography. Applicants are requested to submit scores for both the aptitude and the advanced geography sections of the Graduate Record Examination and the names and addresses of three faculty members of colleges previously attended or persons who can be contacted by the Geography Department for recommendations. Applicants for whom English is a second language are required to present a minimum TOEFL score of 500.

The student will plan a program of study with an adviser during the first term of residence which must include a minimum of 30 graduate-credit term hours in geography, of which at least 15 hours must be in 500-level courses, including the following three seminars: Proseminar in Geography, Geographic Thought and Literature, and Research Design. All graduate students are required to attend the department's non-credit colloquia.

In addition to the University requirements for advancement to candidacy, the student must pass a written qualifying examination, and be recommended by the graduate committee of the department. Students in the M.A. program must complete a thesis. Those in the M.S. program may choose between thesis and research paper options. Generally, the research paper option is designed for students who are preparing for careers in such areas as government service or private consulting. The thesis option would normally be more appropriate for students intending to pursue Ph.D. studies. A final oral examination by the student's committee will include a defense of the thesis or research paper.

Students seeking the M.A. degree must demonstrate their competence in the use of a foreign language for geographic research; those preparing for an M.S. degree must show proficiency in advanced quantitative methods in geography or an equivalent research technique.

STAFF:

James G. Ashbaugh, Ph.D., UCLA—urban, North America
Clarke H. Brooke, Jr., Ph.D., Nebraska—human, Africa, Middle East
Dale E. Courtney, Ph.D., Washington—historical, Latin America
John O. Dart, Ph.D., Washington—geomorphology, conservation
Alexander R. Gassaway, Ph.D., Clark—economic, Europe
Fritz L. Kramer, Ph.D., UC, Berkeley—cartography, historical, cultural (on leave, 1977-78)
D. R. Lycan, Ph.D., Washington—urban, economic, quantitative methods
Thomas M. Poulsen, Ph.D., Wisconsin—political, U.S.S.R., Eastern Europe
Larry W. Price, Ph.D., Illinois—plant geography, Arctic
Willert Rhynsburger, Ph.D., Washington—urban, East and Southeast Asia

University of Rhode Island

DEPARTMENT OF GEOGRAPHY AND MARINE AFFAIRS

DEGREES OFFERED: M.A. in Geography, M.A. in Marine Affairs, M.M.A. in Marine Affairs

GRANTED 7/1/76–6/30/77: 22

GRADUATE STUDENTS IN RESIDENCE: 37
NOT IN RESIDENCE: 9

CHAIRMAN: Lewis M. Alexander

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Prof. Lewis M. Alexander, Chairman, Department of Geography and Marine Affairs, University of Rhode Island, Kingston, Rhode Island 02881
Telephone (401) 792-2596

PROGRAM AND RESEARCH FACILITIES: The department currently offers three masters degrees in two tracks, a two-year masters degree in geography (M.A.), and a two-year masters degree in marine affairs (M.A.M.A.). Both degrees require the completion of a thesis. In addition a one-year master of marine affairs (M.M.A.) degree is offered to persons with prior experience in marine-related affairs, a requirement that can by satisfied by at least five years of practical experience in a marine-related field. In geography the following competencies are offered by the faculty: (1) political geography with special reference to the North American, North Atlantic, European, and Southeast Asian regions; (2) urban geography, especially as related to land utilization of the urban and suburban environment; (3) applied meteorology and climatology; (4) economic geography and location analysis; (5) cartography; and (6) quantitative methods. Within marine affairs the following courses or areas of concentration are offered: (1) coastal zone law and usage; (2) port and marine transportation geography; (3) marine geography, including aspects of exploitation and control in the coastal zone and deep ocean; (4) geography of island systems; and (5) fisheries and maritime law.

Research facilities include the University's IBM 370/155 computer, Broomal M2000 Plotter, and Alden 9271 weather facsimile recorder. In addition specialty libraries in marine affairs, fisheries, and coastal zone regional information center are available. The Claiborne Pell Marine Science Library at the nearby Narragansett Bay Campus was designated the National Sea Grant Depository in 1971.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system; M.A. in geography requires a minimum of 30 credits, including six for thesis research; M.A. in marine affairs requires 42 credits, including six for thesis research; and the Master of Marine Affairs requires 30 credits and a major paper. Admission requirements: for the M.A. in geography, equivalent of 27 credits in

geography or allied fields; M.A. in marine affairs, graduation from accredited college; and Master of Marine Affairs, five years experience in marine areas or completed advanced degree in marine related fields. Graduate assistantships range from $3100 to $3500 and tuition and fees are remitted for the academic year. NSF nominations submitted to Graduate School.

STAFF:

Lewis M. Alexander, Ph.D., Clark, 1949, Professor—political, marine, North America, North Atlantic Basin, Europe

Francis X. Cameron, J.D., Pittsburgh, 1971—coastal zone law, fisheries law and management

James M. Havens, Ph.D., London, 1969, Associate Professor—meteorology, climatology, polar regions

Gerald H. Krausse, Ph.D., Pittsburgh, 1975, Assistant Professor—cartography, cultural and urban geography, Southeast Asia

Aloys A. Michel, Ph.D., Columbia, 1959, Professor and Dean, Graduate School—Europe, Soviet Union, South Asia

Dennis W. Nixon, J.D., Cincinnati, 1975, Assistant Professor—international marine law, maritime institutions

James Spiro, M.A., Michigan State, 1973, Lecturer—economic geography, geography of fisheries, port and marine transportation, field methods

Niels West, Ph.D., Rutgers, 1973, Associate Professor—coastal environmental use and planning, marine recreation, quantitative methods

Rutgers University

GRADUATE PROGRAM IN GEOGRAPHY

DEGREES OFFERED: M.A., M.S., M.Phil., Ph.D.

GRANTED 7/1/76–6/30/77: 2 M.A., 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**31 Masters**	**1 Ph.D.**
NOT IN RESIDENCE:	**10 Masters**	**11 Ph.D.**

ACTING DIRECTOR: John E. Brush

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Director, Graduate Program in Geography, 185 College Avenue, Rutgers University, New Brunswick, New Jersey 08903
Telephone (201) 932-7375

PROGRAMS AND RESEARCH FACILITIES: Opportunities for graduate study in geography at Rutgers are unusual in several respects. The program, the largest in the New York metropolitan area, has grown rapidly during the past few years, is rich in faculty resources, and is effectively integrated into the teaching and research

activities of a university that serves a varied and highly urbanized state. Faculty currently work in such areas as water resources management, environmental planning and decision making, historical, cultural, and social geography, the perception of urban environments, coastal geomorphology, the analysis of urban spatial structure, hazard research and human ecology.

Because of this diversity of faculty interest, students can pursue courses of study that are flexible in nature, but substantively grounded in theory and method. The curriculum is sufficiently structured to facilitate thorough exploration of applied and theoretical aspects of a given problem area, yet is adaptable to individual needs. Strong ties, facilitating interdisciplinary research, are also maintained with a number of other departments and research programs in the natural and social sciences.

Students can have easy access to several of the largest research libraries in the country (Princeton, Columbia, New York Public Library) and the unique research collection of the American Geographical Society. Batch processing and time-sharing are provided through an IBM 360/67 computer.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system. Teaching assistantships with full remission of tuition are available. The stipend is $3969. Similar compensation is provided by several research assistantships. University fellowships and tuition scholarships are also available.

STAFF:

Baruch Boxer, Ph.D., Chicago, 1961, Professor—international environmental issues, China

John E. Brush, Ph.D., Wisconsin, 1952, Professor—population and settlement, South Asia

George W. Carey, Ed.D., Columbia, 1964, Professor—urban, social ecology

Susan Lynn Caris, Ph.D., Chicago, 1976, Assistant Professor—environmental management, community attitudes toward pollution

M. Gerald Fish, Ph.D. candidate, UC, Berkeley, Lecturer—biogeography, Middle America, arid lands

Michael R. Greenberg, Ph.D., Columbia, 1969, Professor—regional economic development, quantitative methods, environmental management

Briavel Holcomb, Ph.D., Colorado, 1972, Associate Professor—urban, social, perception

Robert M. Hordon, Ph.D., Columbia, 1970, Associate Professor—fluvial geomorphology and hydrology

J. Kenneth Mitchell, Ph.D., Chicago, 1973, Associate Professor—resource management, environment and behavior, coastal geography

George H. Nieswand, Ph.D., Rutgers, 1970, Associate Professor—environmental management and planning, systems analysis

Charles Ogrosky, Ph.D. candidate, Washington, Assistant Professor—cartography, computer graphics, remote sensing

Norbert P. Psuty, Ph.D., Louisiana State, 1966, Professor—physical, coastal landforms, remote sensing

Janet C. Schuh, Ph.D. candidate, UC, Berkeley, Assistant Professor—biogeography, resource policy, agriculture

Calvin W. Stillman, Ph.D., Chicago, 1950, Professor—human factors in landscape
Andrew P. Vayda, Ph.D., Columbia, 1956, Professor—human ecology, economic development and environmental problems
Peter O. Wacker, Ph.D., Louisiana State, 1966, Professor—historical, cultural, Anglo-America

San Diego State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 10

GRADUATE STUDENTS IN RESIDENCE: 60

NOT IN RESIDENCE: 5

CHAIRMAN: W. A. Johnson

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. N. H. Greenwood, Graduate Advisor, Department of Geography, San Diego State University, San Diego, California 92182
Telephone (714) 286-5437

PROGRAMS AND RESEARCH FACILITIES: A flexible curriculum complemented by careful advising permits the department to design a program tailored to the professional goals of each M.A. candidate. Students also benefit from a favorable learning situation created by a long tradition of close faculty-student contact.

Although a wide variety of teaching specialties is represented in the department, the large size of the staff has made it possible to concentrate in the following subdivisions of the field: (a) conservation and environmental studies; (b) urban and transportation geography; (c) cartography and remote sensing; (d) geomorphology; (e) Latin America. Graduate students are urged to study in one or more of the above concentrations. A strong applied program is available leading to positions chiefly in categories (a) and (b) above.

Geography, which is housed on the second floor of the Social Science Building, is provided with excellent physical facilities. In addition to well-equipped classrooms and lecture hall, the department has a cartographic laboratory, field and photogrammetric equipment, graduate assistant offices, a class "A" weather station, a reading room, and an excellent map collection of approximately 100,000 sheets. Geography cooperates in a Social Science Research Center with Sociology and Economics, with terminals to on-campus computer facilities as well as access to the California state university and colleges' large-capacity computer.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Two Master of Arts degree plans are available: one which requires a thesis, and a second which requires two research papers. Several assistantships are available for

qualified students on a competitive basis. Appointees either teach discussion sections in the introductory physical geography courses or assist in research activities. Assistants receive a stipend which ranges from $3041 to $4080 (subject to tax and out-of-state fees). Semester System.

STAFF:

James D. Blick, Ph.D., UCLA, 1956, Associate Professor—California, Europe

Albert A. Colombo, M.A., San Diego State, 1963, Assistant Professor—political, cultural

Donald I. Eidemiller, Ph.D., Indiana, 1956, Professor—climatology, meteorology

William A. Finch, Jr., Ph.D., Illinois, 1964, Professor—field methods, physical, remote sensing

Larry R. Ford, Ph.D., Oregon, 1970, Associate Professor—urban, urban design, cultural

Barbara E. Fredrich, Ph.D., UCLA, 1975, Assistant Professor—Latin America, vegetation, cultural

Ned H. Greenwood, Ph.D., Ohio State, 1963, Professor—soils, environment, human ecology

Ernst C. Griffin, Ph.D., Michigan State, 1972, Associate Professor—Latin America, cultural

Harvey E. Heiges, Ph.D., Washington, 1968, Associate Professor—urban, spatial interaction, urban transportation, industrial

Warren A. Johnson, Ph.D., Michigan, 1969, Professor—natural resources, cultural

Elmer A. Keen, Ph.D., Washington, 1965, Professor—economic, marine resources, East Asia

E. J. Conrad Kiewiet de Jonge, Ph.D., Clark, 1951, Professor—climatic and structural geomorphology, air photo interpretation, history of geography, Africa south of the Sahara

David S. McArthur, Ph.D., Louisiana State, 1969, Associate Professor—physical, coastal and fluvial geomorphology, quantitative methods

Bob R. O'Brien, Ph.D., Washington, 1965, Professor—conservation, outdoor recreation

Philip R. Pryde, Ph.D., Washington, 1969, Professor—environmental quality, water resources, Soviet Union

Imre E. Quastler, Ph.D., Kansas, 1971, Associate Professor—transportation, urban

Frederick P. Stutz, Ph.D., Michigan State, 1970, Professor—transportation analysis, urban systems, quantitative methods, computer applications

James W. Taylor, Ph.D., Louisiana State, 1956, Professor—historical, United States, physical

Richard D. Wright, Ph.D., Kansas, 1967, Professor—cartography, map analysis

Charles C. Yahr, Ph.D., Illinois, 1956, Professor—cultural, South and Southeast Asia, United States

San Francisco State University

DEPARTMENT OF GEOGRAPHY AND HUMAN ENVIRONMENTAL STUDIES

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 6

GRADUATE STUDENTS IN RESIDENCE: 47

NOT IN RESIDENCE: 26

CHAIRMAN: Hans-J. Melhoefer

FOR FURTHER INFORMATION WRITE TO: Department of Geography and Human Environmental Studies, San Francisco State University, 1600 Holloway Avenue, San Francisco, California 94132
Telephone (415) 469-2049

PROGRAMS AND RESEARCH FACILITIES: The M.A. program is directed toward a broad base of knowledge in geography. The department has an interest in meeting the needs of potential teachers, planners, cartographers, and professional geographers as well as those intending doctoral studies. Opportunities to do concentrated work do exist, particularly in several sub-fields: regional planning, environmental studies, geographic techniques, regional, cultural-historic, and urban-economic. Research facilities include a photo-cartographic laboratory, a map library, access to the college computer center and environmental field stations.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:

(Semester System)

Completion of a minimum 30 units of work in geography including four graduate seminars and a Master's thesis; no foreign language requirement. Individualized programs reflecting the interests and career goals of each student are developed insofar as faculty with those interests are available. A minimum of 3 semesters needed for completion of course work; no summer program. Admission requirements — 15 undergraduate semester hours in geography with B average for last two academic years (deficiencies in undergraduate program to be made up without counting toward required graduate hours); three letters of recommendation. Only a few assistantships are available for advanced students already in residence.

STAFF:

Rene W. Barendregt, Ph.D., Queen's, 1977, Lecturer—land form geography, water resources, environmental studies

Roger J. Crawford, Ph.D., Washington, 1969, Associate Professor—regional planning, environmental impact and design, urban transportation

Burton L. Gordon, Ph.D., UC, Berkeley, 1954, Professor—field study, biogeography, Europe

Richard F. Hough, Ph.D., Wisconsin, 1963, Professor—cultural, Japan, field study

Max C. Kirkeberg, M.S., Wisconsin, 1961, Assistant Professor—geographic education, cultural, San Francisco, Africa

Hans-J. Meihoefer, Ph.D., Washington, 1968, Associate Professor—geographic methodology, environmental management, agriculture

Steven R. Pease, Ph.D., Wisconsin, 1977, Assistant Professor—climatology-meteorology, physical, environmental problems

Robert D. Picker, Ph.D., Washington, 1962, Professor—economic, environmental management, U.S.S.R.

Georg Treichel, M.A., UC, Berkeley, 1969, Associate Professor—biogeography, environmental studies, human ecology, transportation

Jean Vance, Ph.D., Clark, 1958, Professor—urban, cultural

John E. Westfall, Ph.D., George Washington, 1968, Associate Professor—historical, quantitative, computer applications, population

San José State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 2

GRADUATE STUDENTS IN RESIDENCE: 30

CHAIRMAN: Richard A. Ellefsen

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor Bill Takizawa, Graduate Advisor, Department of Geography, San José State University, San José, California 95192

PROGRAM AND RESEARCH FACILITIES: The program includes studies in a required core and research of a topic consonant with faculty interests and university resources. A department strength is land-use analysis and mapping based on both conventional and remotely sensed imagery. Work in this area is enhanced by a well-equipped laboratory containing an electronic density-slicer, an electronic planimeter/digitizer, a zoom transferscope, a zoom stereoscope, and numerous cartographic devices including a copy camera. Graduate students may be engaged on land-use projects supported by government agencies.

ACADEMIC PLAN AND ADMISSION REQUIREMENTS: The program, containing a thesis and a non-thesis option, consists of 30 semester units, the equivalent of one full academic year. Admission normally requires a B grade average (3.0) for the last two years and a degree in Geography or a related field.

STAFF:

Richard A. Ellefsen, Ph.D., UC, Berkeley, 1968, Professor—urban, land use, remote sensing, California, India

Allan R. Fishman, Ph.D., Illinois, 1971, Associate Professor—economic, conservation, Anglo-America, Europe

Michael P. McIntyre, Ph.D., Ohio State, 1951, Professor—physical, economic, Pacific, Far East

Duilio Peruzzi, Ph.D., Michigan, 1963, Professor—cartography, remote sensing, land use, Europe

Lester B. Rowntree, Ph.D., Oregon, 1971, Associate Professor—cultural, urban, Europe, California (on leave, 1977-78)

David E. Schwarz, Ph.D., Kansas, 1976, Associate Professor—remote sensing, cartography, urban, physical

Raymond W. Stanley, Ph.D., UCLA, 1954, Professor—political, geographic thought, Latin America, California

Bill H. Takizawa, Ph.D., Illinois, 1971, Associate Professor—economic, natural resources, cartography, East Asia

University of South Carolina

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., M.A.T.

GRANTED 7/1/76–6/30/77: 8

GRADUATE STUDENTS IN RESIDENCE: 24

NOT IN RESIDENCE: 8

CHAIRMAN: Julian V. Minghi

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Lisle S. Mitchell, Director of Graduate Studies, Department of Geography, University of South Carolina, Columbia, South Carolina 29208
Telephone (803) 777-5236

PROGRAMS AND RESEARCH FACILITIES: The department offers graduate programs in geography leading to the Master of Arts, Master of Science, and Master of Arts in Teaching degrees. The M.A. and M.S. programs are designed to prepare students for further graduate study and for employment in such areas as planning, business, government service, and teaching. The M.A.T. program, offered in cooperation with the College of Education, prepares students to teach in the public schools or to pursue further graduate study in the teaching field and in professional education.

The department offers training in fundamental geographic skills and the opportunity for advanced study and research in a variety of fields. Coursework clusters reflecting faculty interest and competency include: physical geography and resources; urban, economic, and applied geography; historical, cultural, and political geography, and the history of geography; geographic techniques and

methods; regional geography (Europe, North America, and Latin America); and environmental perception and behavioral geography.

Research facilities in the department's air conditioned quarters include a well-equipped cartographic-photographic laboratory run by a full-time graphics supervisor; an area-analysis laboratory; and a map-air photo depository (including 140,000 sheet maps, 700 atlases, and 40,000 air photos) administered by a full-time map librarian. The department maintains a weather station on campus and has comprehensive files of meteorological data including computer tape records. The University library, a member of the select Association of Research Libraries, contains more than 2.7 million processed volumes.

The department has calculators, key-punching equipment, a digitizer, and an IBM 37/67. Students also have access to a Calcomp Plotter and a data analysis laboratory with equipment such as a Monroe Programmable Calculator, smaller calculators, key-punches, and direct access to the University's main computer (an IBM 370/168). The department employs a systems analyst and offers a full range of programming and consulting services for staff and graduate students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan:* The degree programs require a minimum of 30 semester hours of graduate work. Small, informal classes and seminars offer students the chance to work closely with the faculty, while flexible program requirements offer the opportunity to take related work in other University departments. Specialization in the M.A. and M.S. programs is attained through the writing of a thesis in addition to at least 24 semester hours of coursework. Knowledge of a foreign language is not required unless a student intends to do field work abroad. The M.A.T. program concentrates on coursework and requires neither a thesis nor a foreign language proficiency. M.A.T. students normally take from 6 to 15 credits in professional education and from 15 to 24 credits in geography. Master's degree students may accelerate their progress by taking advantage of the two summer sessions offered each year. Each summer the department sponsors a field trip in the Southeast for entering students.

Admission Requirements: Applications are welcome at any time, and students may matriculate at the beginning of any semester or summer session. In support of any application, a student is required to submit official transcripts of all previous study, Graduate Record Examination scores, two letters of recommendation, and a brief written statement describing career objectives and probable specialties. M.A.T. program applicants may elect to submit scores on the National Teachers Examination (NTE) in lieu of the GRE. The Department does not require an applicant to have an undergraduate major in geography; rather it requires evidence of general intellectual ability.

Financial Aid: Graduate assistantships carry stipends of up to $3000 for approximately 14 hours per week for the academic year, and include a waiver of general tuition fees. Assistantships of up to $3500 may be granted to exceptional students. A limited number of summer assistantships ($500 per session) are also available. Course fees are currently $75 per semester for half-time assistants and $150 per semester for quarter-time assistants. The normal deadline for Fall semester assistantship applications is March 15; the corresponding deadline for Spring semester applications is December 10.

STAFF:

Allen D. Bushong, Ph.D., Florida, 1961—history of geography, source materials, cultural, Middle America

David J. Cowen, Ph.D., Ohio State, 1971—economic, locational analysis, quantitative

Robert L. Janiskee, Ph.D., Illinois, 1974—recreation, resources, environment

David M. Jones, Ph.D., Michigan State, 1975—economic-agricultural, South America

Charles F. Kovacik, Ph.D., Michigan State, 1970—historical, human, North America

Robert E. Lloyd, Ph.D., Pennsylvania State, 1974—perception-behavioral, quantitative, urban

Paul E. Lovingood, Jr., Ph.D., North Carolina, 1963—recreation, computer graphics, land use

Julian V. Minghi, Ph.D., Washington, 1962—political, Europe

Lisle S. Mitchell, Ph.D., Ohio State, 1967—urban-economic, recreation

Judith A. Monte (visiting), Ph.D., Louisiana State, 1977—biogeography, coastal

John C. Purvis (part-time), M.S., South Carolina, 1969—meteorology, microclimatology

Anthony Sas, Ph.D., Clark, 1957—political-military, Europe, Southeast Asia

Richard G. Silvernail, Ph.D., North Carolina, 1960—resources, geographic education, small area analysis

Leslie D. Solomon, Ph.D., Clark, 1974—education in geography, urban economic, urban social

William R. Stanley, Ph.D., Pittsburgh, 1966—transportation, political, developing regions

Theodore R. Steinke, Ph.D., Kansas, 1977—cartography, physical, field methods

John J. Winberry, Ph.D., Louisiana State, 1971—cultural-historical, Mexico

Southern Illinois University—Carbondale

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., M.S.Ed., Ph.D.

GRANTED 7/1/76–6/30/77: 2 M.S., 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**12 Masters**	**10 Ph.D.**
NOT IN RESIDENCE:	**11 Masters**	**10 Ph.D.**

CHAIRMAN: David M. Sharpe

FOR CATALOG AND FURTHER INFORMATION WRITE TO: David M. Sharpe, Chairman, Department of Geography, Southern Illinois University, Carbondale, Illinois 62901
Telephone (618) 536-3375

PROGRAMS AND RESEARCH FACILITIES: The Geography Department offers M.S., M.A., and Ph.D. programs in geography with concentrations in Resource Management and Physical Environmental Systems, and (at the master's level) Urban and Regional Planning. The department's supportive and associated research facilities include a cartographic laboratory with computer mapping capabilities, climatological laboratory, Data Processing and Computing Center, Human Area Studies File, map library staffed with a full-time librarian, and desks and research areas for graduate students.

The objective of the doctoral program is to develop scholars capable of original research in geography. Each student is expected to propose his own program of specialized study designed to achieve his professional goals. Programs are expected to include appropriate training in methodology, research techniques, related disciplines and independent research projects. The student's doctoral committee acts in guidance and evaluative capacities.

The objective of the Master's program is to develop scholars with professional competence appropriate for careers in government, industry, college teaching, or for entering doctoral study. Usually, this program requires two academic years, but it can be completed in an academic year plus a summer.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: All graduate applicants must request application forms for admission. These must be completed and returned to the Department by February 15th to ensure consideration for admission and financial support for the Fall semester. Application includes letters of recommendation, transcripts, and a statement of professional goals. All applicants are requested to take the Graduate Record Exams (GRE's) and submit these with his application. Every applicant is considered for financial assistance and is notified by April 15 of the departmental decision. Financial awards include teaching assistantships, research assistantships, and University fellowships.

STAFF:

David G. Arey, Ph.D., Clark, 1968, Associate Professor—water resources, resource management, environmental studies

Duane D. Baumann, Ph.D., Clark, 1967, Associate Professor—natural hazards, water resources, resource management

Ronald I. Beazley, Ph.D., Purdue, 1953, Professor—economics in geography, resource allocation, public expenditure and project analysis

David E. Christensen, Ph.D., Chicago, 1956, Professor—urban and regional planning, cartography

Daniel Dworkin, Ph.D., Clark, 1974, Assistant Professor—environmental geography, regional water resource simulations

A. Doyne Horsley, Ph.D., Southern Illinois, 1974, Assistant Professor—environmental psychology, teaching of geography, Illinois

Frank E. Horton, Ph.D., Northwestern, 1966, Professor and Vice President for Academic Affairs and Research—urban, transportation analysis

Daniel Irwin, Ph.D., Syracuse, 1972, Associate Professor—cartography, computer graphics

David L. Jones, Ph.D., Pennsylvania State, 1960, Professor—meteorology, oceanography, climatology, earth science

Stanley R. Lieber, Ph.D., Iowa, 1974, Assistant Professor—social, environmental perception, quantitative techniques

David M. Sharpe, Ph.D., Southern Illinois, 1968, Associate Professor—climatology, biogeography, forest ecosystems

Southern Illinois University—Edwardsville

EARTH SCIENCE AND PLANNING DEPARTMENT

DEGREES OFFERED: M.A. and M.S. in Geography, M.S. in City and Regional Planning

GRANTED 7/1/76–6/30/77: 24

GRADUATE STUDENTS IN RESIDENCE: Full-time 52 Part-time 18

NOT IN RESIDENCE: 12

CHAIRMAN: James G. Bridwell

FOR CATALOG AND FURTHER INFORMATION WRITE TO: James G. Bridwell, Chairman, Earth Science and Planning Department, Southern Illinois University-Edwardsville, Edwardsville, Illinois 62026
Telephone (618) 692-3620

PROGRAMS AND RESEARCH FACILITIES: Because of an urban location and the demand for geographic specialists, the staff has designed Master's degrees in Geography, and in City and Regional Planning. Specialties in Regional and Economic Geography, Industrial Location, Urban Geography, Area Development, and Junior College Teaching are available.

The Master of Arts requires a thesis and one year of a foreign language. The Master of Science requires a thesis or two research papers and proficiency in quantitative techniques. Students may take either the 48-hour geography Masters or the 72 quarter-hour degree in urban planning. Internships are available. To date, research has centered on problems related to regional land use in the Greater St. Louis Area.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates on the quarter system with out-of-state fees approximately $500 per quarter. Graduate admission requires a B average or better. An average of C plus permits conditional acceptance. Fellowships and teaching assistantships pay $1200 to $3000 per year plus tuition depending on assignments.

STAFF:

Areas of staff specialty include five staff members in Earth Science, nine staff members in geography, and seven staff members in urban planning. Six of the urban planners are A.I.P. members. Part-time staff are utilized to teach specialties in Earth Science and Planning.

William B. Baker, Ph.D., Nebraska, Professor—cultural, rural
James G. Bridwell, M.A., Southern Illinois, Assistant Professor and Chairman—conservation, meteorology
Donald W. Clements, Ph.D., Southern Illinois, Assistant Professor—urban, quantitative techniques
James E. Collier, Ph.D., Nebraska, Professor—cartography, agricultural
Dorothy J. Gore, Ph.D., Wisconsin, Associate Professor—engineering-geology
Charles F. Hess, Ph.D., Michigan State, Professor—regional planning and hydrology
Norman C. Johnsen, M.A., Syracuse, Assistant Professor, AIP—planning administration
Alfred Kahn (part-time), M.S., Denver, Associate Professor, AIP—environmental planning
Harry B. Kircher, Ph.D., Clark, Professor—economic, conservation
Robert L. Koepke, Ph.D., Illinois, Professor—area development, industrial location
Fred A. Lampe, Ph.D., Kansas, Associate Professor—geographic techniques, educational geography
Carl S. Lossau, Ph.D., Northwestern, Professor, AIP—urban and regional planning
Loran D. Marlow, Ph.D., Southern Illinois, Assistant Professor—earth science
Robert E. Mendelson (part-time), M.U.P., Illinois, Associate Professor, AIP—housing
Halsey W. Miller, Ph.D., Kansas, Professor—environmental and urban geology
Phillip Simon, M.R.C.P., Oklahoma, Associate Professor, AIP—urban and regional planning
Donald Strohmeyer, M.R.P., Kansas State, Associate Professor, AIP—design and physical planning
Noble R. Thompson, Ph.D., Tennessee, Assistant Professor—Latin America, cartography
Charles A. Thornton, Ph.D., Tennessee, Associate Professor—quantitative techniques, transportation planning
Robert B. Wise, Ph.D. candidate, Wisconsin, Instructor—meteorology
Ronald E. Yarbrough, Ph.D., Tennessee, Assistant Professor—earth sciences, environmental impact
Additional faculty to be appointed.

University of Southern Mississippi

DEPARTMENT OF GEOGRAPHY AND AREA DEVELOPMENT

DEGREES OFFERED: M.A., M.S., Ph.D.

GRANTED 7/1/76–6/30/77: 3 Masters

GRADUATE STUDENTS IN RESIDENCE: 14 Masters

NOT IN RESIDENCE: 12 Masters

CHAIRMAN: William M. Roberts

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Jesse O. McKee, Graduate Program Coordinator, Department of Geography and Area Development, S.S. Box 468, University of Southern Mississippi, Hattiesburg, MS 39401 Telephone (601) 266-7193

PROGRAM AND RESEARCH FACILITIES: The department offers concentrations in resources management, urban and regional planning, environmental planning, transportation and land use, population and cultural systems, and cartographic-remote sensing techniques balanced by staff specialties in a variety of other systematic and regional areas. Overall staff emphasis has recently been strongest in economic geography and the technical skills areas, although physical geography is currently being reinforced. All programs emphasize fieldwork, the application of technical skills, and the development of a research capability in a particular concentration of geography. Internship arrangements are encouraged and are available for interested students. Interdisciplinary cooperation is stressed and the department plays an active role in various university programs such as American Studies, Latin American Studies, Environmental Technology, Science Education, Recreation, Criminal Justice, and Secondary Education.

The department has working relationships with various Mississippi planning and development agencies, regional waterways' commissions, the Gulf Coast Research Laboratory, the Mississippi R & D Center, the Gulf Coast Hydroscience Center, the State Highway Department, and NOAA's Slidell Flood Forecast Center. The department's remote sensing activities interface with NASA's Earth Resource Laboratory and the Department of Interior Earth Resource Observation Systems Program. Funded research currently underway is sponsored by such agencies as the U.S. Dept. of Transportation, the Mississippi Research and Development Center, the Mississippi Marine Resources Council, the Pat Harrison Waterway District, and the Mississippi Game & Fish Commission.

The Department of Geography and Area Development occupies the second floor of the ten-story Johnson Science Tower. The department's facilities include well-equipped classrooms, a weather station, a cartography-remote sensing laboratory, a soils laboratory, a quantitative laboratory, and an interactive computer terminal. Laboratory equipment includes a coordinated digitizer, stream table, Calcomp plotter, zoom transferscope, color additive viewers, a Variscan,

desktop electronic calculators, and access to a Tektronix 4010 CRT associated with the university's new Xerox Sigma 9 computer. Cartographic capabilities include full-color process and computer mapping.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University is on the quarter system.

Admission to the masters programs requires an undergraduate major in geography or its equivalent. The Ph.D. program requires a masters in geography from USM or its equivalent. Selection based on GPA, GRE score, letters of recommendation, the experience record of the student, and the compatibility of his interests with those of the departmental program.

Financial Aid: NSF traineeships, university grants-in-aid, various types of internships and teaching or research assistantships are available on a competitive basis. The latter include stipend plus waiver of out-of-state tuition. March 1st is the deadline for applicants seeking financial aid. Applications for admission without aid will be considered until late spring. Notification of aid awards will be made by April 15.

STAFF:

Ralph D. Cross, Ph.D., Michigan State, 1968, Associate Professor—climatology, meteorology, water resources, watershed management

James W. Gladden, Jr., AIP, Ph.D. candidate, Georgia, Assistant Professor—community and regional planning, urban and transportation geography, quantitative methods

Arthell Kelley, Ph.D., Nebraska, 1954, Professor—physiography, soils, history and development of geographic thought, U.S. South, Europe

Jesse O. McKee, Ph.D., Michigan State, 1972, Associate Professor—cultural/social, historical, population and human resources, Africa

W. Theodore Mealor, Jr., Ph.D., Georgia, 1972, Associate Professor—economic, land utilization and settlement, aerial photo/remote sensing, North America

William M. Roberts, Ph.D., Washington, 1964, Professor and Chairman—political, economic, industrial location analysis, Asia, U.S.S.R.

Charles T. Traylor, Ph.D. candidate, Kansas, Assistant Professor—cartography, computer graphics, cartographic data banks, remote sensing

Robert W. Wales, Assoc. AIP, Ph.D., Kansas, 1973, Associate Professor—field techniques, environmental planning, resource management, Latin America

University of Southwestern Louisiana

DEPARTMENT OF SOCIAL STUDIES

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 4

GRADUATE STUDENTS IN RESIDENCE: 5

NOT IN RESIDENCE: 1

COORDINATOR FOR GEOGRAPHY: Robert M. Webb

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Robert M. Webb, Box 4–3531, USL Station, Lafayette, Louisiana 70504
Telephone (318) 233–3850, ext. 270

PROGRAMS AND RESEARCH FACILITIES: M.A. program in geography. Twenty-four hours course work plus thesis or 36 hours (non-thesis option). No language requirement. Cartography required if not taken as an undergraduate. The program includes city and regional planning as an area of concentration.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system. For admission require 2.5 (on a 4.0 scale) undergraduate grade point average and minimum of 18 hours of geography, but will admit on probation students with lower grade-point averages. Graduate assistantships available on competitive basis pay $2400 for two semesters. Assistants teach two sections of freshmen each semester or assist in research.

STAFF:

O. Douglas Abington, Ph.D., Louisiana State, 1973, Assistant Professor—physical, fluvial geomorphology

Dennis K. Ehrhardt, Ph.D., Iowa, 1972, Associate Professor—urban, quantitative methods

David C. Johnson, Ph.D., Washington, 1976, Assistant Professor—urban planning, population

Charles C. Oldham, Ph.D., Ohio State, 1977, Assistant Professor—transportation, quantitative methods, planning

Timothy F. Reilly, Ph.D., Missouri, 1972, Assistant Professor—Africa, Soviet Union, Far East, Europe

William C. Rense, Ph.D., Oregon State, 1973, Assistant Professor—environment, physical, climatology

Emmett F. Stallings, Ph.D., Florida State, 1970, Associate Professor—water resources, economic

Robert M. Webb, Ph.D., Kansas, 1962, Professor—political, physiography, Anglo-America

State University of New York at Albany

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 4

GRADUATE STUDENTS IN RESIDENCE: 13

NOT IN RESIDENCE: 14

CHAIRMAN: W. Wayne Heiser

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Admissions Office, College of Arts and Sciences, State University of New York at Albany, 1400 Washington Avenue, Albany, New York 12222
Telephone (518) 457-8455

PROGRAMS AND RESEARCH FACILITIES: The master's program in geography has four general areas of concentration: regional studies, urban geography, urban and regional planning, and resource utilization. Equally emphasized is instruction in the modern techniques and methodologies currently being developed and used to such great advantage by geographers; namely cartography, statistics, computer science, model theory, operational gaming, and remote sensing.

Work toward the M.A. includes 30 credit hours, of which at least 22 must be in geography. Students are required to enroll in either a graduate research seminar or, with permission, a thesis program. Within this framework, each individual student will devise, with his adviser, a program unique to his own interests and academic background. Students must also pass a comprehensive departmental examination.

Facilities available for support of the departmental program include the University Library, of over 750,000 volumes, the departmental map library, and well-equipped cartographic, remote sensing/aerial photograph, and geomorphology laboratories. The department has access to the University's UNIVAC 1110 computer through various remote terminals. Interactive graphics and picture processing capabilities are also available. The department also has one programmable unit and a variety of calculators for student use. In addition to the many other university departments and programs of interest to the geographer in expanding and sophisticating his given expertise, there are the very important resources available in the capital area, these being federal, state, regional, and municipal agencies, programs, and libraries. The Albany area also provides excellent opportunities for studies in any of the four areas of departmental concentration.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates on the semester plan with additional Summer Sessions. Assistantships which carry stipends of $2200 and $3100 plus remission of tuition are available. In addition there are State University Scholarships, National Science

Foundation Graduate Traineeships as well as the New York State Scholar Incentive Program.

STAFF:

Stanley F. Blount, Ph.D., Northwestern, 1962, Professor—physical, resources
Michael W. Dobson, Ph.D. candidate, Kansas, Lecturer—cartography, computer applications in cartography
Howard H. Flierl, Ph.D., Syracuse, 1955, Professor—United States, New York State, agriculture
W. Wayne Heiser, Ph.D., Northwestern, 1965, Associate Professor—Europe, U.S.S.R., political, energy resources
Floyd M. Henderson, Ph.D., Kansas, 1973, Assistant Professor—remote sensing, urban, land use, environmental perception
Paul D. Marr, Ph.D., UC, Berkeley, 1967, Associate Professor—urban and regional planning, urban, coastal zone management
John S. Pipkin, Ph.D., Northwestern, 1974, Assistant Professor—computer and quantitative techniques, transportation, behavioral geography
James E. Vitale, Ph.D., Pittsburgh, 1977, Assistant Professor—urban and regional planning, transportation, spatial and mathematical modeling, environmental and economic impact analysis

State University of New York at Binghamton

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A.T.

GRANTED 7/1/76–6/30/77: 8 M.A.

GRADUATE STUDENTS IN RESIDENCE: 18
NOT IN RESIDENCE: 7

CHAIRMAN: John Frazier

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Department of Geography, State University of New York at Binghamton, Binghamton, New York 13901
Telephone (607) 798-2755

PROGRAMS AND RESEARCH FACILITIES: The M.A. degree in geography may be earned by following one of three tracks:

Track 1: General Geography—Designed for students interested in geography within a liberal arts context. Provides disciplinary foundation along classical lines, which can lead to teaching careers, or, combined with history, economics, or

other social sciences, can lead to interdisciplinary work in scholarly areas such as conservation, environmental management, economic development, and international studies.

Track 2: Analytical Geography—This track is designed to educate students as geographical/spatial analysts, with particular emphasis on environmental and land use planning. Among the essential components are cartography, remote sensing, field techniques, computer mapping, and mass-data processing. Its objective is career preparation in these areas. To fulfill this goal, practical experience obtained from internships and field research will be integrated into the formal curriculum. Competence resulting from this training also provides the option of pursuing the Ph.D. degree.

Track 3: Geography and Urban Planning—Designed to educate students in urban analysis and planning, with particular emphasis on the integration of the environmental, urban-economic, and institutional aspects of planning. Among the essential components of this program are geographic techniques, urban seminars, environmental concerns such as water management, community involvement, and practical experience through internship programs. Similar to Track 2, graduates will be able to work for public and private agencies as well as pursue advanced degrees.

Extensive use is made of the IBM 370/155 computing system which includes a variety of statistical, simulation, and graphic routines in data analysis and plotting. Departmental facilities include modern cartography, remote sensing, air photo interpretation, and physical geography labs, map library, classrooms, lecture halls, and library.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Admission requirements: Bachelor's degree, or its equivalent, and a reasonable background in geography. The department may require up to five courses of undergraduate work without credit to make up undergraduate deficiencies. Graduate assistantships are offered. Teaching and research assistantships and planning internship stipends are available to qualified candidates. Apply to Dr. John Frazier, Chairman, Department of Geography, SUNY-Binghamton, Binghamton, New York 13901

STAFF:

Morris Budin, Ph.D., New School for Social Research, 1954, Professor—urban planning

Joseph H. Butler, Ph.D., Columbia, 1960, Professor—water resources, economic, Latin America

John Frazier, Ph.D., Kent State, 1976, Assistant Professor—urban, behavioral

Glenn C. Gustafson, Ph.D., Munich, 1973, Assistant Professor—remote sensing, physical

Norah F. Henry, Ph.D., Kent State, 1976, Assistant Professor—human, cartography

Shin-yi Hsu, Ph.D., UCLA, 1967, Associate Professor—cartography/remote sensing, quantitative methods, diffusion of innovations

Joseph M. Missavage, M.R.P., Cornell, 1954, Adjunct Associate Professor—urban and regional planning

Nicolay Timofeeff, Ph.D., Columbia, 1967, Associate Professor—quantitative methods, physical

Joseph E. Van Riper, Ph.D., Michigan, 1939, Emeritus Professor

State University of New York at Buffalo

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 6 M.A., 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 16 M.A. 7 Ph.D.

NOT IN RESIDENCE: 3 M.A. 1 Ph.D.

CHAIRMAN: Ross D. MacKinnon

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Director of Graduate Studies, Department of Geography, State University of New York at Buffalo, Fronczak Hall, Amherst, New York 14260

PROGRAMS AND RESEARCH FACILITIES: The Department offers programs leading to the degree of Master of Arts or Doctor of Philosophy. The M.A. program normally covers three semesters and is largely, but not entirely, oriented toward those students who desire to obtain advanced technical training prior to taking up professional careers in government or industry. The Ph.D. program admits a limited number of superior students who desire in-depth research and technical training as a prelude to careers in education, government and industry.

Graduate work is currently offered in four general areas which reflect the interests and competency of our faculty. These areas are:

Environmental Analysis and Physical Geography
Geographic Information Systems and Computer Cartography
Trade and Transportation
Urban and Regional Analysis

Students are expected to direct their work toward one or more of these areas. A new program providing an M.A. in Geography with an emphasis in international trade started in 1975. This multidisciplinary program will also involve substantial contacts with firms engaged in international trade.

The work in geographic information systems and computer cartography is supported by the facilities of the Geographic Information Systems Laboratory. The main purpose of the Laboratory is to provide a sophisticated facility for examination of the common ground lying between information processing and the many disciplinary sub-fields utilizing spatial analysis techniques. Special facilities of the Laboratory are centered around a powerful NOVA 840 minicomputer with 64K bytes of memory and 2.5 million byte disk cartridge system. Attached to the

NOVA as peripheral devices are a modified high-speed Tektronix storage tube unit used for graphic input and output and a digitizing system operating on a real-time basis to provide a means for the input of large volumes of high-precision, geocoded data. A 9-track, 800 bpi magnetic tape drive is also available and provides a means of data transfer between the specialized computer facilities of the Laboratory and the main university computer. The Laboratory's facilities will be significantly upgraded over the next twelve months. Scheduled additions include: a high-speed, high-resolution matrix printer-plotter, expansion of high-speed disk storage to approximately 100 billion bytes, expansion of memory to over 128K bytes with hardware memory management, and the incorporation of multiplexed Tektronix 4014 graphics terminals. A student exchange program is maintained with the Graphic System Design and Application Group of Electrical Engineering Department of the University of Saskatchewan (Dr. A.R. Boyle, Director) and it is expected that similar cooperative arrangements will be established with other university units in the near future. The Laboratory also maintains close working relationships with the Commission on Geographical Data Sensing and Processing of the International Geographical Union and the Geography Program Exchange located at Michigan State University.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The university operates on the semester plan with additional Summer Sessions.

There are graduate assistantships awarded to qualified students and the department also attempts to provide summer support for qualified students. In addition, Graduate School Fellowships are available on a universitywide competitive basis.

Applicants must submit GRE scores (verbal and quantitative only), two letters of recommendation, transcripts, and a brief essay detailing their educational objectives and professional interests.

STAFF:

Kurt Brassel, Ph.D., Zurich, 1973, Assistant Professor—cartography, computer graphics, geographic information systems

David Brophy, Ph.D., Wisconsin, 1977, Assistant Professor—cartography

Hugh Calkins, Ph.D., Washington, 1972, Associate Professor—land use, urban and regional planning, geographic information systems

Edgar C. Conkling, Ph.D., Northwestern, 1962, Professor—international trade, land use theory, industrial location

Charles H. V. Ebert, Ph.D., North Carolina, 1957, Professor—pedology and soils geography, land use, Europe and Soviet Union

Perry O. Hanson III, Ph.D., Northwestern, 1972, Assistant Professor—urban, quantitative, public information systems, travel behavior

Susan Hanson, Ph.D., Northwestern, 1973, Assistant Professor—urban, transportation, social, perception (joint appointment with Sociology)

John S. Haupert, Ph.D., Syracuse, 1955, Associate Professor—arid lands, agriculture, political, Middle East and North Africa

Richard Jarvis, Ph.D., Cambridge, 1975, Assistant Professor—biogeography, fluvial geomorphology, climatology, quantitative

Barry Lentnek, Ph.D., Johns Hopkins, 1966, Associate Professor—regional analysis, development, Latin America

Ross D. MacKinnon, Ph.D., Northwestern, 1968, Professor—transportation, quantitative

Duane F. Marble, Ph.D., Washington, 1959, Professor—geographic information systems, travel behavior, urban

James E. McConnell, Ph.D., Ohio State, 1969, Associate Professor—transportation, international trade, regional development

Richard A. Mitchell, Ph.D., Iowa, 1964, Associate Professor—quantitative, urban

David A. Smith, Ph.D., Michigan, 1959, Associate Professor—transportation, Western Europe

Michael Woldenberg, Ph.D., Columbia, 1968, Associate Professor—fluvial geomorphology, network theory

Syracuse University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 6 M.A., 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**15 M.A.**	**24 Ph.D.**
NOT IN RESIDENCE:	**2 M.A.**	**12 Ph.D.**

CHAIRMAN: Robert G. Jensen

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Ralph A. Sanders, Chairman of Admissions Committee, Department of Geography, 343 H.B. Crouse Hall, Syracuse University, Syracuse, New York 13210
Telephone (315) 423-2605/2606

PROGRAMS AND RESEARCH FACILITIES: The department has a diversified program emphasizing political, social, and cultural geography, historical geography, urban and regional development, man-environment relationships, geographic techniques and area studies. It is part of the Maxwell Graduate School of Public Affairs, which is especially strong in the area of public policy, both domestic and foreign. The department also has close relations with other departments in the Colleges of Arts and Sciences, Forestry, and Engineering. It participates in the following formal interdisciplinary programs:

Metropolitan Studies (including the Urban and Regional Planning Program and the Urban Transportation Institute)

International Relations	Soviet and East European
South Asian	American Studies
Latin American	Water Resources
East African	Social Sciences

Staff offices, classrooms, and graduate student room are in an air-conditioned building at the center of the campus, near the libraries and computing center. Cartographic and special research facilities are in a separate building.

The department is characterized by informality in personal relationships, flexibility in designing training programs for individual students, and an emphasis on competent empirical application of research skills. A wide variety of courses, seminars, colloquia, field training, and individualized work is offered. Each year a number of distinguished geographers are brought to Syracuse for special lectures and seminar sessions.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system.

Admission: By individual evaluation by the department. Minimum Graduate School requirements: B.A. degree, 2.5 (on 4.0 basis) undergraduate average (occasional exceptions).

Applicants must submit transcripts, 3 letters of recommendation, GRE scores on Verbal and Quantitative; Advanced Geography GRE optional.

Financial Aid: Teaching assistantships, research assistantships, and various fellowships are available. Annual stipends vary from about $3100 to $4000 plus remission of 9 to 12 hours of tuition per semester, making the total value of the awards worth about $5900 to $6900. Applicants should clearly specify any special regional or topical interests as certain aids are so categorized. Applications are invited for a special Cartographic Teaching Assistantship and for Dell Plain Assistantships in Latin American geography.

STAFF:

John A. Agnew, Ph.D., Ohio State, 1975, Assistant Professor—political, social, urban

David J. de Laubenfels, Ph.D., Illinois, 1953, Professor—biogeography, climatology, urban physical environments, circum-Pacific

Robert G. Jensen, Ph.D., Washington, 1964, Associate Professor—economic, regional development, Soviet Union

Donald W. Meinig, Ph.D., Washington, 1953, Maxwell Professor of Geography—historical, cultural and social, United States

Mark S. Monmonier, Ph.D., Pennsylvania State, 1969, Associate Professor—cartography and mapping, quantitative methods, computer applications, automated map design

James L. Newman, Ph.D., Minnesota, 1968, Associate Professor—cultural, population, diet-nutrition, Africa

David J. Robinson, Ph.D., London, 1967, Associate Professor—historical, urban, Latin America

Rowan Rowntree, Ph.D., UC, Berkeley, 1973, Associate Professor—environmental policy, resource management, ecosystems, urban physical environments

Ralph A. Sanders, Ph.D., Minnesota, 1974, Assistant Professor—urban, quantitative methods, United States

David E. Sopher, Ph.D., UC, Berkeley, 1954, Professor—social, cultural (religions, languages, popular culture), South Asia

John H. Thompson, Ph.D., Washington, 1949, Professor—economic, urban and regional planning problems, United States, New York State

PROFESSOR EMERITUS:
Preston E. James, Ph.D., Clark, 1923, Maxwell Professor Emeritus of Geography

Temple University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 8

GRADUATE STUDENTS IN RESIDENCE: 10

NOT IN RESIDENCE: 7

CHAIRMAN: William J. Young

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Graduate Committee, Department of Geography, Temple University, Philadelphia, Pennsylvania 19122
Telephone (215) 787-7691

PROGRAMS AND RESEARCH FACILITIES: The objectives of the Master's program are to provide the student with (1) an appreciation of the nature of modern geographic thought, (2) competence in basic research methods and techniques, (3) analytical skills that can be applied to geographic problem-solving, particularly in an urban setting.

Metropolitan areas can be envisioned as regions, and the Department focuses on the geography of such regions. Within this framework, graduate courses are organized around the systematic specialties of the individual faculty members. Close ties are maintained with the Urban Studies Program, and efforts are made to use the Philadelphia metropolitan area as a laboratory for research.

The basic requirements, in addition to those prescribed by the Graduate School are (a) admission to the Graduate School, (b) a final comprehensive examination, and (c) the successful completion of either eight courses plus a thesis, or eleven courses.

Paley Library and associated libraries on the campus house approximately one million volumes, including considerable geographic literature. The Philadelphia area offers ample opportunity for urban research and study.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester System. *Admission:* by Graduate School and departmental evaluation of undergraduate average, two letters of recommendation, GRE scores (verbal and quantitative), and B.A. transcripts.

Financial Aid: Teaching assistantships, research assistantships and fellowships, which carry tuition remission plus a stipend, are available. In addition, a limited number of tuition scholarships are awarded annually.

STAFF:

David J. Cuff, Ph.D., Pennsylvania State, 1972, Associate Professor—physical, cartography, energy

Roman A. Cybriwsky, Ph.D., Pennsylvania State, 1972, Assistant Professor—urban, social, neighborhoods

Lane J. Johnson, Ph.D., Clark, 1960, Professor—urban, methodology, settlement systems

Kenneth C. Meyer, Ph.D., Syracuse, 1974, Assistant Professor—urban, quantitative and computer methods, ethnic groups

Henry N. Michael, Ph.D., Pennsylvania, 1954, Professor—U.S.S.R., United States and Canada, Soviet peoples

Peter O. Muller, Ph.D., Rutgers, 1971, Associate Professor—economic, transportation, suburbia

John W. Pawling, Ph.D., Michigan State, 1970, Associate Professor—physical, aerial photo interpretation, physical landscapes

George F. Rengert, Ph.D., North Carolina, 1971, Assistant Professor—cultural, population, crime

Carolyn J. Ryan, Ph.D., Clark, 1964, Associate Professor—urban, economic, land use planning

Marilyn Silberfein, Ph.D., Syracuse, 1971, Associate Professor—cultural, Africa, environmental perception

William J. Young, Ph.D., Tennessee, 1971, Assistant Professor and Chairman—economic, market areas, health care

University of Tennessee

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S., Ph.D.

GRANTED 7/1/76–6/30/77: 5 M.A., 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**12 M.S.**	**11 Ph.D.**
NOT IN RESIDENCE:	**2 M.S.**	**6 Ph.D.**

HEAD: Sidney R. Jumper

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Sidney R. Jumper, Department of Geography, University of Tennessee, Knoxville, Tennessee 37916 Telephone (615) 974-2418

PROGRAMS AND RESEARCH FACILITIES: *Programs:* The M.S. and Ph.D. programs permit graduate students to gain both broad and specialized competence and to

pursue their own research interests. Specialization is available in a wide variety of fields, especially geography of rural and non-metropolitan areas (including agricultural, cultural, historical, resource, settlement, land-use, transportation, and recreational aspects), systems-oriented, man-related physical geography, urban geography (especially economic development, transport, and location theory), and in the regional and historical geography of Anglo-America (especially the South, the Middle West, Appalachia, and the Border South).

The Master's program requires a minimum of 45 quarter hours including 9 hours credit for thesis. Specific course requirements for the Doctoral program are determined by faculty committee in accordance with interests and needs of the student. Master's degree normally prerequisite to Ph.D. program. A minimum of 15 hours of collateral work, a reading knowledge of one foreign language, and competence in appropriate quantitative and graphic techniques are required. Written and oral preliminary examination; oral final examination.

Research facilities: The department is convenient to libraries and a wide range of related departments. The University Computer Center is unusually accessible to students and offers excellent short courses and other aids for users. Calculating, cartographic, photographic, computer graphics, and remote sensing equipment and a map library are available in the department. The department is currently a partner to research contracts with NASA, the University's Transportation Center, and the Oak Ridge National Laboratory, involving participation by and financial aid for graduate students. Departmental contacts with Tennessee Valley Authority and Oak Ridge National Laboratory have led directly to the employment of graduate students and degree recipients.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Quarter system. Admission requirement to Graduate School: 2.5 overall undergraduate record. GRE required. Financial aid: Graduate Assistantships, Graduate Teaching Assistantships, and University Fellowships; all stipends carry exemption from maintenance and tuition fees.

STAFF:

Charles S. Aiken, Ph.D., Georgia, 1969, Associate Professor—rural, agricultural, Anglo-America, U.S. South

Thomas L. Bell, Ph.D., Iowa, 1973, Associate Professor—urban, location theory, transportation, quantitative methods

Leonard W. Brinkman, Ph.D., Wisconsin, 1964, Associate Professor—historical, Anglo-America, Appalachia

James R. Carter, Ph.D., Georgia, 1973, Assistant Professor—thematic cartography, computer graphics, climatology

William N. Cherry, M.S., Tennessee, 1953, Assistant Professor—economic, Tennessee

Edwin H. Hammond, Ph.D., UC, Berkeley, 1951, Professor—land-surface system, land form, concept and method

Sidney R. Jumper, Ph.D., Tennessee, 1960, Professor and Head—utilization of resources, agricultural, U.S. South

Robert G. Long, Ph.D., Northwestern, 1949, Professor—Latin America, Asia, cartography

Bruce A. Ralston, Ph.D., Northwestern, 1976, Assistant Professor—transportation, urban, quantitative methods, diffusion theory

John B. Rehder, Ph.D., Louisiana State, 1971, Associate Professor—cultural, rural settlement, remote sensing

Theodore H. Schmudde, Ph.D., Wisconsin, 1960, Professor—environmental impact of rural land uses, soils, recreational settlement, field methods

Texas A&M University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S., Ph.D.

GRANTED 7/1/76–6/30/77: 1 M.S.

GRADUATE STUDENTS IN RESIDENCE: 12 M.S. 4 Ph.D.

NOT IN RESIDENCE: 0 M.S. 1 Ph.D.

HEAD: Campbell W. Pennington

FOR CATALOG AND FURTHER INFORMATION WRITE TO: The Registrar, Texas A&M University, College Station, Texas 77843
Telephone (713) 845-1031
For information about department: Head, Department of Geography
Telephone (713) 845-7141

PROGRAMS AND RESEARCH FACILITIES: The department is broadly interested in human and physical geography as exemplified by the staff interests listed below. A strong background in systematic studies is required. The associated departments in the College of Geosciences provide excellent opportunities for graduate level work in geology, meteorology, and oceanography, while other colleges of the University are able to support advanced study in a variety of natural resource areas. Special opportunities exist for graduate work in regional planning and recreation studies in cooperation with the College of Architecture and the Department of Recreation and Parks.

Specialized interests include: analysis of the man-land relationship with emphasis on time, invention, and diffusion; historical geography of Latin America; the culture history of primitive water craft and their significance as agents of cultural diffusion; cross-cultural and cross-environmental study of environmental meaning, sensitivity, and preference; plant geography during and since the Pleistocene; plant migration and speciation; origins of agricultural plants and systems; geomorphology with emphasis on coastal problems; decision-making in coastal environments. Many of these interests are shared by the staff at large.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Texas A&M University is on the semester system. *Admission requirements:* Bachelor's

degree and approval by Department Head, 1000 minimum on GRE. Research, teaching assistantships are available.

STAFF:

George F. Bass, Ph.D., Pennsylvania, 1964, Professor—nautical archeology

George F. Carter, Ph.D., UC, Berkeley, 1942, Distinguished Professor—human geography, New World

Earl Cook, Ph.D., Washington, 1954, Professor—environmental and resource analysis

Edwin Doran, Jr., Ph.D., UC, Berkeley, 1953, Professor—culture history of watercraft, the Caribbean and Pacific

Clarissa Kimber, Ph.D., Wisconsin, 1969, Associate Professor—plant geography, Caribbean

Campbell W. Pennington, Ph.D., UC, Berkeley, 1959, Professor and Head—historical geography of the United States, Texas, Latin America

Joseph Sonnenfeld, Ph.D., Johns Hopkins, 1957, Professor—behavioral geography, extreme environments, especially the Arctic

Frederick van Doorninck, Jr., Ph.D., Pennsylvania, 1967, Associate Professor—nautical archeology

Sent Visser, Ph.D., Ohio State, 1976, Assistant Professor—economic

Kenneth L. White, Ph.D., UC, Riverside, 1976, Assistant Professor—physical, geomorphology, cartography

The University of Texas at Austin

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 9 M.A., 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 21 M.A. 6 Ph.D.

CHAIRMAN: Robert K. Holz

FOR CATALOG AND FURTHER INFORMATION WRITE TO: The Graduate Advisor, Department of Geography, University of Texas at Austin, Austin, Texas 78712 Telephone (512) 471-5116

PROGRAMS AND RESEARCH FACILITIES: The graduate program is designed to train modern geographers in specialized areas of research and teaching. The Department places particular emphasis on the interrelationships among six fields: physical, cultural, remote sensing, urban and economic geography, and environmental analysis. The program is oriented to research, although course work may be suggested to remedy academic deficiencies. Students are strongly encouraged to undertake supporting work in allied fields. Ordinarily, a graduate

student, especially one at the Ph.D. level, is expected to integrate a thematic specialization with a regional interest. All incoming graduate students are strongly urged to select individual faculty advisors immediately.

University research centers with which the department has strong and active ties include the Population Research Center, Water Resources Research Center, Bureau of Business Research, Bureau of Economic Geology, Center for Advanced Transportation Studies, the L. B. J. School of Public Affairs, and Energy Studies Center. Special area study programs include Latin America, Middle East, Asia, and Europe. Facilities available for student use include a computer center based on a CDC 6600 and a research cartography and remote sensing laboratory, map library, and computational equipment housed within the Department.

Every graduate student will undertake a special course, with examinations, on issues and research in Geography during his first semester of residence. For the master's degree, students must complete 30 to 36 hours of course work with a minimum average grade of B including two required courses, one in history and philosophy and the other in issues and research in geography. In addition, proficiency must be demonstrated in one foreign language or quantitative analysis, and a thesis or two research papers must be written and approved. For the doctorate, students must complete a master's degree or the equivalent, demonstrate proficiency in two foreign languages or one foreign language and quantitative methods, and complete a course in history and philosophy and one in issues and research in geography (if not completed at the master's level). Students are admitted to candidacy upon the successful completion of examinations on geographic methodology and philosophy, the candidate's fields of special research, and dissertation proposal. The Ph.D. degree is granted upon the successful defense of the dissertation.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan:* Semester System. *Admission Requirements:* (1) Admission to Graduate School, by application; (2) A score of 1000 (combined quantitative and verbal) on the Graduate Record Examination; (3) A "B" average for the last two years of college. Some departmental discretion may be exercised on an individual basis.

Financial Aid: Fellowships, Scholarships, Teaching Assistantships, Research Assistantships, Cartographic Assistantships, and Map Clerk positions.

STAFF:

Stanley A. Arbingast, Ph.D., Washington, 1956, Professor, Director, Bureau of Business Research—resources of Texas

Bruce Bigelow, Ph.D. candidate, Syracuse, Instructor—historical, Anglo-America

M. George Bowden, Ph.D., Texas, Adjunct Associate Professor—geographic education

Christopher Shane Davies, Ph.D., Indiana, 1970, Associate Professor—urban, transportation

Robin W. Doughty, Ph.D., UC, Berkeley, 1971, Associate Professor—cultural, ecology

Paul Ward English, Ph.D., Wisconsin, 1965, Director, Center for Middle Eastern Studies, Professor—cultural, Middle East

Charles E. Greer, Ph.D., Washington, 1975, Assistant Professor—China, resource management

Kingsley E. Haynes, Ph.D., Johns Hopkins, 1971, Associate Professor, L.B.J. School of Public Affairs—economic, location theory, geographical methodology

James L. Hesler, Ph.D. candidate, Iowa, Instructor—geomorphology, soils, natural resources

George W. Hoffman, Ph.D., Michigan, 1950, Professor—political, history and philosophy, East Europe

Robert K. Holz, Ph.D., Michigan State, 1963, Professor—remote sensing, cartography, North Africa

David L. Huff, Ph.D., Washington, 1960, Professor—marketing, urban and regional analysis

Lorrin G. Kennamer, Ph.D., George Peabody, 1952, Dean, UT School of Education, Professor—regional geography of Texas

Ian R. Manners, D. Phil., Oxford, 1969, Associate Professor—Middle East, physical, ecology

Gundars Rudzitis, Ph.D., Chicago, 1977, Assistant Professor—environmental economics, urban

Michael Ernest Sabbagh, Ph.D., Wisconsin, 1961, Associate Professor—climatology, Africa

Richard Symanski, Ph.D., Syracuse, 1971, Assistant Professor—cultural, Latin America

University of Toledo

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A.E.

GRANTED 7/1/76–6/30/77: 8

GRADUATE STUDENTS IN RESIDENCE: 8

NOT IN RESIDENCE: 12

CHAIRMAN: Basil A. Collins

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Lawrence A. Hoffman, Department of Geography, University of Toledo, 2801 W. Bancroft St., Toledo, Ohio 43606
Telephone (419) 537-2179

PROGRAMS AND RESEARCH FACILITIES: The Master of Arts program in geography is designed to provide a broad background in the field within the context of student interests and departmental capabilities. Faculty interests and research facilities offer opportunities for students to orient their programs toward one or more of the following: (a) economic and population geography; (b) urban ge-

ography, urban spatial perception and urban planning; (c) physical geography, regional ecology, and conservation and management of natural resources; (d) regional development and regional planning.

Opportunities for graduate research and instruction are enhanced by the close association of the department with graduate programs in the allied fields of urban and regional economics, sociology and anthropology, geology, biology, operations and engineering.

Department faculty and graduate students enjoy close association with urban and regional planning agencies and organizations within the Toledo regional area.

The department occupies recently renovated quarters, including a modern cartography laboratory, a physical geography laboratory, a map library, a Xerox-4000 copier, and a mini-computer (Wang) with plotter. All students have access to the facilities of the University Map Library, Computing Center, and Media (Audio-Visual) Service.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The academic plan for the M.A. degree consists of 45 quarter hours of graduate work including comprehensive examinations and a thesis. Normally, six quarters are required to complete the program.

The M.A.E. degree is a joint degree, for those wishing to be junior college teachers, involving a minimum of 23 hours in the College of Arts and Sciences and 17 hours in the College of Education, plus thesis credit in either college.

Applicants must hold a bachelor's degree in geography or a related field, and have a grade average of at least 2.7 or satisfactory scores on the Graduate Record Examination.

Graduate teaching and research assistantships, University and Board of Trustee Fellowships, NSF traineeships and graduate internships in regional planning are available to qualified applicants.

STAFF:

Robert M. Basile, Ph.D., Ohio State, 1953, Professor—physical geography, especially climatology, micro-climatology, geography of soils

Basil A. Collins, Ph.D., Michigan, 1973, Associate Professor—Middle East and North Africa, cultural, history of geographical thought

Walter T. Edelen, M.C.P., Georgia Institute of Technology, 1960, Adjunct Associate Professor—urban planning, urban renewal, especially administration, regional planning

Byron E. Emery, Ph.D., Michigan, 1963, Professor—political, cultural, regional development planning

Eugene N. Franckowiak, Ph.D., Michigan, 1973, Associate Professor and Director of Cartography—cartography, Latin America, especially Andean America, environmental perception

Lawrence A. Hoffman, Ph.D., Johns Hopkins, 1950, Professor—economic, especially economic development, East and South Asia, especially India, historical urban geography

Donald L. Lewis, Ph.D., Ohio State, 1966, Professor—resource management, urban, Anglo-America, especially the Great Lakes Region

William A. Muraco, Ph.D., Ohio State, 1971, Associate Professor—economic, especially industrial location theory, urban and quantitative methods
Kenneth E. Suchan, M.C.P., Massachusetts Institute of Technology, 1964, Adjunct Associate Professor—urban and regional planning

Towson State University

DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL PLANNING

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 4

GRADUATE STUDENTS IN RESIDENCE: 1

NOT IN RESIDENCE: 55

CHAIRMAN: Norman R. Diffenderfer

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dean, Graduate Studies, Towson State University, Towson, Maryland 21204
Telephone (301) 321-2501

PROGRAMS AND RESEARCH FACILITIES: The program is designed to provide a broad mastery of the field through a balanced curriculum of topical and regional studies with research experiences. Requirements for the M.A. are the successful completion of 30 semester hours with thesis (36 semester hours without thesis), and a reading knowledge of a modern language or competency in statistical techniques.

The university is situated in the suburban area north of Baltimore. Libraries and research facilities of several large universities and government agencies of Baltimore, Washington, and Philadelphia are within a short distance of the campus. An ample collection of the principal geographical books and periodicals is contained in the college library.

A recently completed, air-conditioned building houses the Department of Geography and its special facilities, which include a well-equipped cartography/air photo laboratory, map library, Department library, electronic calculators, and audio-visual materials. Towson State is the location of the Maryland State Colleges Information Center (MSCIC) which serves the needs of eight state colleges and universities with its UNIVAC 1106. Housed within the Department of Geography and Environmental Planning are several computer telecommunications terminals. Available software includes the SPSS, Biomed, SYMAP, etc.

The Department has also operated a successful internship program since 1970. Internships are available with several private firms and public agencies at the federal, state, and county levels.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system. Admission is based on evaluation of individual applicant's experience, transcript of previous course work, and personal references. Provisional admission to a qualifying program may be granted for those lacking prerequisites. Financial aid includes Graduate Assistantships and Fellowships.

STAFF:

Norman R. Diffenderfer, M.A., Nebraska, 1943, Associate Professor—Anglo-America, soils and plant geography

James E. Dilisio, Ph.D., Oklahoma, 1975, Assistant Professor—economic, quantitative

David Firman, Ph.D., Maryland, 1955, Professor—Asia, environmental studies

Kenneth Haddock, Ph.D., Michigan State, 1975, Instructor—medical, Latin America

Hlib S. Hayuk, M.A., Wisconsin—Milwaukee, 1967, Assistant Professor—Soviet Union, population

Curtis V. Martin, M.A., Clark, 1953, Associate Professor—Europe, urban, political

Wayne L. McKim, Ph.D., Northwestern, 1974, Associate Professor—Africa, cultural (on leave, 1977-78)

Ralph C. Scott, Ph.D., Georgia, 1972, Assistant Professor—physical

Marshall L. Stevenson, M.A., East Carolina, 1968, Assistant Professor—cartography

ASSOCIATED STAFF:

Herbert P. Bangs, Baltimore County Office of Planning and Zoning—land use regulations

William Brooner, Earth Satellite Corporation—air photo interpretation

John Dillon, Baltimore County Office of Planning and Zoning—principles of zoning

Walter H. Kratzmeier, Baltimore County Office of Planning and Zoning—principles of planning, urban design

University of Utah

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., Ph.D.

GRANTED 7/1/76-6/30/77: 6 Masters, 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**36 Masters**	**3 Ph.D.**
NOT IN RESIDENCE:	**10 Masters**	**2 Ph.D.**

CHAIRMAN: Merrill K. Ridd

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Merrill K. Ridd, Chairman, Department of Geography, University of Utah, Salt Lake City, Utah 84112 Telephone (801) 581-8218

PROGRAMS AND RESEARCH FACILITIES: The Department offers a broad program in systematic and regional Geography and in techniques and methodology. Emphasis in graduate programs continues in environmental systems, urban problems, and planning—particularly in applied physical geography, land use, urban geography/urban planning, transportation, and regional resource development. Strong ties are maintained with allied departments, including geology, biology, meteorology, civil engineering, economics, political science, sociology, psychology, leisure studies, and law. Close liaison is kept with many local, state, and federal planning and resource management agencies.

Regional emphasis is on the Intermountain Area and underdeveloped areas. The Department faculty cooperate in University centers, institutes, or programs in the Middle East (one of the best in the country), Latin America, Europe, and Asia.

Cartography, remote sensing, or geographic/earth science education may be identified as graduate specialities. Cartographic facilities include a large laboratory, studio, drafting room, complete reproduction facilities, and a large copy camera and darkroom. The Department's Center for Remote Sensing and Cartography has become a major support facility on campus, in the State, and the Region, with various projects and contracts in land use, resource analysis, and mapping. Equipment includes a density slicer, digitizer, mini-computer, image compositor, zoom transferscope, etc.

For those interested in geographic or earth science education the Department continues a tradition of service to schools and teachers through institutes, workshops, and curriculum development. Most of the faculty have been involved in these programs. Currently we have an outreach program through which several teachers are pursuing master's degrees.

The Department places emphasis on field and laboratory techniques and quantitative methods, for which a growing supply of field instruments and a statistics laboratory are available. A growing library of computer mapping programs is maintained in the department and at the University Computer Center.

The Department occupies new facilities designed to specifications for geography and located only a few yards from the new library in the center of the campus. The library houses a very large map collection and a complete worldwide set of LANDSAT imagery (July 1972 to November 1975) in 9×9 B/W format for all bands.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Quarter system. Candidates must be accepted by the University's Graduate School. A 3.00 G.P.A. is required for acceptance. Candidates should have three letters of recommendation and GRE score sent directly to the Graduate Studies Committee. There are several teaching assistantships ranging in stipend from $3000 to $3500, plus a waiver of tuition. Research assistantships, part-time project work, and summer employment are available. Applications for assistantships are due February 15. Internships may be arranged with federal, state, and local public agencies.

FACULTY:

Elizabeth K. Burns, Ph.D., UC, Berkeley, 1974, Assistant Professor—urban geography and planning, transportation, economic

Donald R. Currey, Ph.D., Kansas, 1969, Associate Professor—geomorphology, mountain and desert environments, Quaternary environments, biogeography, field techniques, remote sensing

Albert L. Fisher, Ph.D., John Hopkins, 1954, Professor—political, cultural, tropical development, Europe, Caribbean

Dennis E. Fitzsimons, M.A., San Diego State, 1973, Associate Instructor—cartography

Lawrence M. Harmon, Ph.D., Florida, 1971, Assistant Professor—Latin America, tropical environments, quantitative methods, settlement

Roger L. Henrie, Ph.D., Utah, 1976, Visiting Assistant Professor—land use planning, environmental perception and behavior, quantitative methods, geographical systems

Morris E. Johnson, M.C.P., M.I.T., 1951 Professor—urban and regional planning

Jeanne Kay, M.S., Wisconsin-Madison, 1973, Instructor—biogeography, resources, historical

Paul A. Kay, M.S., Wisconsin-Madison, 1973, Assistant Professor—geomorphology, paleoenvironments, soils, climatology

James W. King, Ph.D., Northwestern, 1964, Associate Professor—cultural, Africa, Middle East

Chung-Myun Lee, Ph.D., Michigan, 1961, Professor—land use, remote sensing and aerial photos, East and Southeast Asia, economic

Roger M.McCoy, Ph.D., Kansas, 1967, Associate Professor—remote sensing, water resources, geomorphic processes

Merrill K. Ridd, Ph.D., Northwestern, 1963, Professor and Chairman—remote sensing and cartography, applied geomorphology and land capability, planning

Richard W. Travis, Ph.D., Illinois, 1973 Assistant Professor—urban, social and behavioral, medical, quantitative methods

ADJUNCT FACULTY AND PROFESSORS EMERITI:

Robert G. Bailey, Ph.D., UCLA, 1971, Adjunct Associate Professor—geomorphology, land capability, regional ecosystems

Eugene E. Carr, M.C.P., Ohio State, 1966, Adjunct Associate Professor—urban planning

Vasyl M. Gvosdetsky, Ph.D., Kiev, 1936, Professor Emeritus—soils, physiography, Soviet Union

H. Bowman Hawkes, Ph.D., Ohio State, 1947, Professor Emeritus—climatology, physiography, geographic education, Europe

Robert P. Huefner, D.B.A., Harvard, 1972, Adjunct Associate Professor—planning administration, local government

Lee Kapaloski, Ph.D. candidate, Colorado, J.D., Utah, Adjunct Assistant Professor—environmental law and planning

University of Vermont

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A.T.

GRANTED 7/1/76–6/30/77: 2

GRADUATE STUDENTS IN RESIDENCE: 11

NOT IN RESIDENCE: 10

CHAIRMAN: Canute VanderMeer

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Program Coordinator, Department of Geography, University of Vermont, Burlington, Vermont 05401
Telephone (802) 656-3060

PROGRAMS AND RESEARCH FACILITIES: The M.A. degree is general in character rather than specialized and requires thirty graduate credits, including six devoted to a thesis or two research papers. Faculty interests span most systematic aspects of geography. Technique competence includes cartography, remote sensing, and quantitative methods. Regional interests and field experience are virtually world-wide in scope. Vermont, the Lake Champlain Basin, and adjacent areas in Canada and Northern New England provide diverse settings for interesting field work. Among the facilities are a library with a fine collection on Vermont and Canada; a map library; an XDS Sigma 6 computer system with plotter and graphics terminal; and well-equipped cartographic and remote sensing laboratories.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system plus summer sessions. Admission requirements are detailed in the Graduate College Bulletin. Applicants should present twelve semester hours or their equivalent in geography and supporting courses in related fields. Persons applying for financial assistance as well as admission should have applications with all supporting materials including GRE scores in the Graduate College by March 1. Most New England students from outside Vermont may be eligible for in-state tuition rates. The Department has six Graduate Teaching Fellowships. The Graduate College has fellowships and scholarships.

STAFF:

H. Gardiner Barnum, Ph.D., Chicago, 1965, Associate Professor—regional and historical geography of Europe, urban, cartography

Howard S. Biel, Ph.D., Ohio State, 1976, Assistant Professor—transportation, urban, economic, planning

Daniel W. Gade, Ph.D., Wisconsin, 1967, Associate Professor—cultural, biogeography, Latin America, Mediterranean

Aulis O. Lind, Ph.D., Wisconsin, 1968, Associate Professor—physical, remote sensing of environment, water resources

Harold A. Meeks, Ph.D., Minnesota, 1964, Associate Professor—physical, rural land use, U.S.S.R., United States, New England

Edward J. Miles, Ph.D., Syracuse, 1958, Professor—political, Canada, Africa, historical geography of the United States and Canada

Canute VanderMeer, Ph.D., Michigan, 1962, Professor—agricultural, China, Southeast Asia

University of Washington

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED 7/1/76–6/30/77: 3 M.A., 4 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 31 M.A. 25 Ph.D.

NOT IN RESIDENCE: 5 M.A. 11 Ph.D.

CHAIRMAN: Richard L. Morrill

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor William Beyers, Graduate Advisor, Department of Geography, University of Washington, Seattle, Washington 98195
Telephone (206) 543-5843

PROGRAMS AND RESEARCH FACILITIES: In order to provide the degree of specialization essential to contemporary graduate training in geography, the Department, in its graduate program, emphasizes the major systematic and technical fields of study, and a selected number of foreign areas. Students who elect the University of Washington for graduate study should be aware of the special emphases of the Department.

Fields and Areas of Specialization:

1. Urban Location and Internal Spatial Structure—Hodge, Mayer
2. Transportation and Spatial Interaction—Fleming, Hodge, Mayer
3. Industrial Linkages—Regional Economics & Development—Beyers, Krumme, Thomas
4. Resources Policies and Utilization—Marts, Sharp, ZumBrunnen
5. Population Migration and Cultural Diffusion—Morrill, Velikonja
6. Spatial Problems of Political Communities—Jackson, Velikonja
7. Agricultural Organization and Production—Jackson, Kakiuchi
8. Cartographic Methods, including Automated Mapping—Horwood, Sherman, Youngmann
9. Quantitative Methods and Computer Use—Horwood, Morrill, Youngmann

10. Foreign Area Interests: THE SOVIET UNION—Jackson, Velikonja, ZumBrunnen; EASTERN EUROPE—Velikonja; WESTERN EUROPE—Fleming; CHINA—Chang; and JAPAN—Kakiuchi

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: University of Washington operates on the quarter system. Admission to the Graduate School requires a minimum grade point average of *B* (3.00 on a four-point scale) during the Junior and Senior years. Students holding the Master's degree must meet this minimum scholastic requirement, but should also have achieved a higher than *B* average for graduate studies completed. Other information to be provided by prospective graduate students will be indicated by more detailed statement available from the Graduate Program Advisor.

STAFF:

William B. Beyers, Ph.D., Washington, 1967, Associate Professor (also Graduate Program Advisor)
Kuei-sheng Chang, Ph.D., Michigan, 1955, Associate Professor
Douglas K. Fleming, Ph.D., Washington, 1965, Associate Professor
David C. Hodge, Ph.D., Pennsylvania State, 1975, Assistant Professor
W.A. Douglas Jackson, Ph.D., Maryland, 1953, Professor
George H. Kakiuchi, Ph.D., Michigan, 1957, Associate Professor
Gunter Krumme, Ph.D., Washington, 1966, Associate Professor
Marion E. Marts, Ph.D., Northwestern, 1950, Professor (also Dean, Summer Quarter)
Jonathan Mayer, Ph.C., Michigan, 1975, Acting Assistant Professor
Richard L. Morrill, Ph.D., Washington, 1959, Professor (Department Chairman)
Virginia L. Sharp, Ph.D., 1977, Pennsylvania State, Instructor
John C. Sherman, Ph.D., Washington, 1947, Professor
Morgan D. Thomas, Ph.D., Queen's (Belfast), 1954, Professor
Joseph Velikonja, Ph.D., University of Rome (Italy), 1948, Associate Professor
Carl Youngmann, Ph.D., Kansas, 1972, Assistant Professor
Craig ZumBrunnen, Ph.D., UC, Berkeley, 1973, Assistant Professor

Wayne State University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A. (thesis or essay option) and Master of Arts in Teaching College Geography

GRANTED 7/1/76–6/30/77: 9 M.A.

GRADUATE STUDENTS IN RESIDENCE: 13
NOT IN RESIDENCE: 35

CHAIRMAN: Fred E. Dohrs

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Graduate Committee, Department of Geography, Wayne State University, Detroit, Michigan 48202
Telephone (313) 577-2701

PROGRAMS AND RESEARCH FACILITIES: The graduate program emphasizes the education of professionals with a broad foundation in geography which will enable them to undertake successfully careers in research, teaching, and community service. Instruction is offered leading to the degrees of Master of Arts and Master of Arts in Teaching College Geography. Either degree may be earned by a thesis or essay option. The core curriculum is followed by specialized work with emphasis on gaining practical experience while the student learns. Students in the Master of Arts in Teaching College Geography program obtain practical experience in area college classrooms under the guidance of regular faculty.

Of many university-wide facilities, the following deserve special mention: the university and nearby public libraries which together contain more than 3.5 million volumes and 150,000 maps with outstanding special collections in urban affairs, ethnic studies, folklore, Eastern Europe, the Soviet Union, the history of technology, and the Great Lakes region; the centers for Afro-American Studies, Black Studies, Urban Affairs, American Studies, Ethnic Studies, Soviet and East European Studies, Instructional Technology, Business Research; and the Merrill-Palmer Institute.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University operates on the quarter system. In order to be admitted to the Department, an applicant should have an undergraduate major in geography or its equivalent, but intellectual ability, professional potential, and an abiding interest in geography are the main criteria for admission. Each application is judged individually and each program is tailored to the needs and desires of the individual student.

Several types of financial aid in the form of assistantships, fellowships, scholarships, work-study internships, and loans are available from the Department or the Graduate School. Departmental awards usually carry a minimum grant of $3400 and a waiver of tuition fees. Applications for financial aid for the 1978-79 academic year should be submitted before March 1, 1978.

STAFF:

Margaret E. Crawford, Ph.D., Michigan, 1973, Assistant Professor—East and Southeast Asia, cultural

Fred E. Dohrs, Ph.D., Northwestern, 1950, Professor and Chairman—political, Soviet Union, Eastern Europe

Robert J. Goodman, Ph.D., Northwestern, 1948, Professor—visual techniques, historical, India

Judith I. Parkhurst, Ph.D., Illinois, 1975, Assistant Professor—geomorphology, physical environments, ecology, cartography

Robert Sinclair, Ph.D., Northwestern, 1955, Professor—economic-urban, Europe

Robert D. Swartz, Ph.D., Northwestern, 1967, Associate Professor—marketing, urban, Latin America

Bryan Thompson, Ph.D., Clark, 1971, Associate Professor—ethnic settlement, urban

West Virginia University

DEPARTMENT OF GEOLOGY AND GEOGRAPHY

DEGREES OFFERED: M.S.

GRANTED 7/1/76–6/30/77: 2

GRADUATE STUDENTS IN RESIDENCE: 4

NOT IN RESIDENCE: 3

CHAIRMAN: Alan C. Donaldson

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Department of Geology and Geography, West Virginia University, 305 White Hall, Morgantown, West Virginia 26506
Telephone (304) 293–5603

PROGRAM AND RESEARCH FACILITIES: Departmental emphasis is on Resources, Environmental Analysis, and Regional Development and Planning. The University's location offers a unique opportunity for the study of economic, social, and physical problems of Appalachia and similar developing areas. A working relationship is maintained with the Appalachian Center of the University, the West Virginia Department of Highways, the School of Mines, and the West Virginia Geological and Economic Survey. New programs in urban and regional studies, water resources, and land use management are currently being developed.

The department is located in close proximity to the main University library which has over one million volumes, including an extensive collection of materials on West Virginia and Appalachia. Computer facilities available include an IBM 360/75 and a number of remote access terminals and graphic I/O facilities.

Departmental facilities include a large library of maps, air photos, and cartography equipment. The department shares a building with the West Virginia Geological and Economic Survey. Office and research space is provided for graduate students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: West Virginia is on a semester system beginning in mid-August.

A bachelor's degree from an accredited college or University with a minimum grade point average of 2.5 is required, and 2.75 is recommended for financial aid. Students may be required to supply scores from the GRE.

Graduate teaching and research assistantships are available on a competitive basis and pay approximately $2400/year, which includes tuition.

STAFF IN GEOGRAPHY:

Harley E. Johansen, Ph.D., Wisconsin, 1973, Assistant Professor—economic, population, settlement and diffusion, regional development

Richard S. Little, Ph.D., Syracuse, 1961, Associate Professor—applications of information-system technology to regional planning and development, physical

Kenneth Martis, Ph.D., Michigan, 1975, Assistant Professor—political, resources, environmental policy, urban
Graham Rowles, Ph.D., Clark, 1976, Assistant Professor—social, urban, planning
Ruth Rowles, M.S., Wisconsin, 1976, Instructor—cartography
George Stepko, Ph.D. candidate, Pittsburgh, Assistant Professor—resource planning, economic, recreation

ADJUNCT:
Robert E. Behling, Ph.D., Ohio State, 1971, Associate Professor of Geology—glacial geology, geomorphology, weathering in cold desert regions of Antarctica
Alan C. Donaldson, Ph.D., Pennsylvania State, 1959, Professor of Geology (Chairman)—sedimentology, stratigraphy
Henry Rauch, Ph.D., Pennsylvannia State, 1972, Associate Professor of Geology—hydrogeology and water quality, environmental geology

Western Illinois University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED 7/1/76–6/30/77: 15

GRADUATE STUDENTS IN RESIDENCE: 26

NOT IN RESIDENCE: 5

CHAIRMAN: Arlin D. Fentem

FOR CATALOG AND FURTHER INFORMATION WRITE TO: A. Richard Longwell, Chairman, Graduate Committee, Department of Geography, Western Illinois University, Macomb, Illinois 61455
Telephone (309) 298-1582

PROGRAMS AND RESEARCH FACILITIES: Students admitted to the program may select either a thesis or a non-thesis option for their graduate program. With the former option, an oral examination follows the completion of the thesis which is the capstone of the 48-quarter-hour program. The non-thesis option requires 48 hours of course work as well, followed by a set of written and oral comprehensive examinations. Test areas include choice of one region and two systematic areas, research design, and two of three theory-methodology topics. A cognate specialization in Geographic Education is available in both options.

The number and diversified interests of the faculty permit the offering of a balanced curriculum with opportunities for particular concentrations. Graduate specialization includes cartography, physiography, pleistocene geomorphology, soils, historical geography, meteorology-climatology, urban geography, regional planning, and rural development. At the present time, faculty and graduate stu-

dents are engaged in a variety of research activities. Examples of such research are strip mine reclamation, the spatial variation of crime, pleistocene extinctions, the planning of rural educational facilities, agrarian reform in Mexico, rural transportation systems, land suitability and capability analyses, regional solid-waste disposal, and water resources management.

The department offices, classrooms, and laboratories are in Tillman Hall, a modern, four-story, air-conditioned building. Internal facilities include the University Map Library, a seminar-reading room supplied with current geographically-related periodicals, a well-equipped cartography laboratory, an earth materials testing laboratory, a remote computer terminal, and a weather station. Further, a recent rehabilitation program has provided new facilities in support of research and course work in meteorology, microclimatology, quantitative methods, computer graphics, and remote sensing. Also located in Tillman Hall is the University-supported Institute for Regional, Rural, and Community Studies which conducts research and planning for the western Illinois region and provides opportunities for practical experience. University facilities include the modern Memorial Library with both extensive geographical and geological collections, a computer center, and a 160-acre field station located on the Mississippi River.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Western Illinois University operates on the Quarter System on a year-around basis. Admission requirements specify that graduate applicants must hold the Bachelor's Degree from an institution that is accredited by the appropriate regional crediting agency. Regular admission to the School of Graduate Studies is granted to those applicants whose overall grade-point average for their undergraduate work is at least 2.5 (on a 4-point system), or the grade-point for their last two years of undergraduate work is 2.75 or higher. Applicants must have completed a minimum of 36 quarter-hours in geography. The Graduate Record Examination is also required.

Departmental graduate assistantships are offered to 12 qualified applicants. The graduate assistant carries a three-quarters academic load (12 quarter hours). Tuition and registration fees are waived. A number of additional research and planning assistantships are offered through arrangements with the Institute for Regional, Rural, and Community Studies and other agencies.

STAFF:

John J. Alford, Ph.D., Kansas, 1968, Associate Professor—paleogeography, climatology

John V. Bergen, Ph.D., Indiana, 1964, Professor—map curator, human, Anglo-America

Ronald M. Beveridge, Ph.D., Illinois, 1958, Associate Professor—political, geographic thought and methodology, Middle East

John F. Blauvelt, M.A., Colorado, 1962, Assistant Professor—cultural, Middle East

Arlin D. Fentem, Ph.D., Wisconsin, 1974, Associate Professor—agricultural, Anglo-America, developing areas

Robert E. Gabler, Ed.D., Columbia, 1957, Professor—physical, geography in education, Europe

David W. Ganyard, Ph.D., Ohio State, 1967, Associate Professor—economic, historical, Africa

Donald W. Griffin, Ph.D., Clark, 1963, Professor—urban geography-regional planning, rural development

Fred E. Kohler, Ph.D., Ohio State, 1971, Assistant Professor—water resources, climatology, meteorology

Lawrence T. Lewis, Ph.D., Clark, 1971, Associate Professor—quantitative methods, urban

A. Richard Longwell, Ph.D., Nebraska, 1974, Associate Professor—field methods, Middle America

Kenneth R. Martin, Ph.D., Wisconsin, 1956, Professor—physiography, Europe

Ronald E. Nelson, Ph.D., Nebraska, 1970, Professor—historical-cultural settlement, Soviet Union

Richard L. Rieck, Ph.D., Michigan State, 1976, Assistant Professor—Pleistocene geomorphology, physical

James W. Vining, M.A., Oklahoma, 1963, Assistant Professor—conservation, soils

Robert T. Wilson, M.S., Louisiana State, 1971, Assistant Professor—cartography, biogeography, remote sensing

Additional appointments in regional-rural planning and climatology expected for Fall 1977.

Western Kentucky University

DEPARTMENT OF GEOGRAPHY AND GEOLOGY

DEGREES OFFERED: M.S., M.S. for College Teachers, M.A. in Education with a Geography Major, Master of Public Service (City and Regional Planning option)

GRANTED 7/1/76–6/30/77: 5 M.S., 2 M.A.Ed., 5 M.P.S.

GRADUATE STUDENTS IN RESIDENCE: 22

HEAD: Wayne L. Hoffman

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Mark Lowry II, Graduate Studies Advisor, Department of Geography and Geology, Western Kentucky University, Bowling Green, Kentucky 42101
Telephone (502) 745-4555/6

PROGRAMS AND RESEARCH FACILITIES: The topical emphases in Western Kentucky University's graduate geography programs include social, physical, urban and economic geography. Regional emphases are possible in Africa, Latin America, and North America.

Programs and Requirements—The Master of Science Degree, designed to prepare students to become candidates for the Ph.D., requires a minimum of twenty-four semester hours of coursework, a thesis, plus either a reading

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knowledge of one language (French, German, or Russian) or a demonstrated proficiency in quantitative techniques in geographical research.

The Master of Science for College Teachers Degree, designed primarily for those students who intend to teach, requires a minimum of twenty-four semester hours if the thesis option is chosen or thirty semester hours if the non-thesis option is taken, plus a proficiency in a language or quantitative methods.

The Master of Arts in Education Degree with a Geography Major requires a minimum of twenty-one hours in geography and nine hours of education courses.

The department also participates in the Master of Public Service Degree, an interdisciplinary program designed to train public officials for service at local and state levels. The geography option in the M.P.S. program is in City and Regional Planning.

Research facilities in new quarters include all standard laboratories, closed-circuit TV, a CDC computer terminal and access to a 360-40 computer, the College Heights Weather Station, a map library, and the university's graduate library.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:

Admission Requirements: An undergraduate degree with G.P.A. of 2.5 or higher (on a 4.00 scale).

Financial Aid: A number of teaching and research assistantships are available with stipends ranging between $1800 and $2700 for the academic year.

STAFF:

S. Reza Ahsan, Ph.D., Florida, 1963, Professor—cartography, air photo interpretation, remote sensing, Latin America, Eastern Africa

James M. Bingham, M.A., Memphis State, 1965, Ph.D. candidate, Indiana State, Assistant Professor—economic, urban, Southeastern United States

W. Willard Cockrill, M.S., Peabody College, 1947, Ph.D. course work, Tennessee, Professor—meteorology, conservation, historical, Europe

Doral Glen Conner, M.S., Western Kentucky, 1976, Instructor—geomorphology, aviation meteorology

Nicholas Charles Crawford, Ph.D., Clark, 1977, Assistant Professor—geomorphology, hydrology, climatology

James L. Davis, Ph.D., Northwestern, 1964, Professor and Associate Dean of the Faculties—urban transportation, economic, North America

Ronald R. Dilamarter, Ph.D., Iowa, 1973, Associate Professor—geomorphology, physiography

Edmund E. Hegen, Ph.D., Florida, 1962, Professor and Director of International Projects—regional development, conservation of resources, geographic thought, Latin America

Wayne L. Hoffman, Ph.D., Florida, 1970, Professor and Head—city and regional planning, urban, economic, political, quantitative techniques

Mark Lowry II, Ph.D., Syracuse, 1973, Associate Professor and Graduate Advisor—city and regional planning, urban, social

Albert J. Petersen, Ph.D., Louisiana State, 1970, Associate Professor—cultural, geographic education, geographic thought, Great Plains

Claude E. Pickard, Ph.D., Nebraska, 1969, Professor—economic, settlement patterns, manufacturing, North America

James W. Taylor, Ph.D., Indiana, 1955, Professor—physical, population, South Asia

Western Michigan University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.A.T.

GRANTED 7/1/76–6/30/77: 11

GRADUATE STUDENTS IN RESIDENCE: 10

NOT IN RESIDENCE: 4

CHAIRMAN: Joseph P. Stoltman

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Charles F. Heller, Graduate Adviser, Department of Geography, Western Michigan University, Kalamazoo, Michigan 49008
Telephone (616) 383–1835

PROGRAMS AND RESEARCH FACILITIES: The M.A. degree program in Geography provides a solid foundation in the subject and at the same time permits specialization. Thirty hours of approved graduate credits must be completed, with at least twenty hours in geography. All students take seven hours of core courses in Geographic Research and Quantitative Methodology, then develop a three-course concentration (minimum) in one of four areas: Urban, Resource-Environment, Physical, or one of several regional specialties. Additional courses or seminars in geography and cognate fields are scheduled to fit the candidate's professional goals, and the capstone experience consists of a two-six hour research paper or thesis. An emphasis of the program is preparation for planning occupations; appropriate training is provided by course work and by the possibility of internships in urban, regional, environmental or recreational planning agencies.

The M.A.T. degree program in Geography is designed to improve the classroom teacher's competencies in the teaching of geography. Substantive content in geography and related disciplines is combined with professional development in elementary or secondary education. Thirty hours of approved graduate credits must be completed, consisting of twelve hours in geography, nine hours in teacher education, six hours of electives, and a three hour internship. In most instances the internship will consist of designing, implementing, and evaluating a specific classroom activity.

The Department possesses full-equipped cartography, aerial photo, and quantitative laboratories which include a map enlarger, lettering and scribing equipment, reproduction and darkroom facilities, sketch masters, height finders, mirror stereoscopes, electronic desk calculators, and electronic analog computer. Departmental remote terminals provide ready access to the University PDP-10 Computer. An Alden Facsimile Recorder makes available current weather data, including up to 120 daily weather maps via the National Weather Facsimile Network. The Berry Research Center is a departmental facility with archival materials, census publications, and microfilm readers. Nearby is the University Map Library, containing almost 150,000 maps and 1000 atlases, and the University Archives with their outstanding Regional Historical collection.

The University makes available funds to support well-designed research by graduate students, and departmental endowment funds make possible both joint staff-student research projects and the presentation of student efforts at geographical meetings.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Graduate courses are concentrated in the Fall and Winter semesters, although graduate study may be accelerated by utilizing fully the trimester schedule of the University. Students with a 2.7 grade-point average (A=4.0) during the last four semesters of undergraduate work are eligible for admission to the program. University and Departmental Fellowships, with no duties, are available to highly-qualified students, and a number of Graduate Assistantships are granted to eligible students each year. Assistantships coincide with the Fall and Winter semesters (September through April), and in 1977-78 they will pay $3600. Applications for financial assistance must be supported by two letters of recommendation and transcripts of undergraduate work. All Fellows and Assistants are provided office space, and the same is normally true for other graduate students.

STAFF:

David G. Dickason, Ph.D., Indiana—economic development, quantitative methods, South Asia

Val L. Eichenlaub, Ph.D., Ohio State—climatology, Anglo-America, physical

Rainer R. Erhart, Ph.D., Illinois—remote sensing, physical, biogeography

Charles F. Heller, Ph.D., Illinois—socioeconomic, urban social, Anglo-America

Thomas W. Hodler, Ph.D., Oregon State—cartography, hydrology, remote sensing

Oscar H. Horst, Ph.D., Ohio State—physical landscapes, peasant societies, Latin America

Albert H. Jackman, Ph.D., Clark—Arctic and Alpine areas, ecology, political

Louis Kiraldi, LL.D., Budapest, Head, Map Library—map librarianship, cartobibliography, history of maps and mapping

Eugene C. Kirchherr, Ph.D., Northwestern—urban, planning and zoning, Subsaharan Africa

Edwin E. Meader, M.A., Wayne State—Middle East and North Africa

Philip P. Micklin, Ph.D., Washington—U.S.S.R., conservation, physical

Eldor C. Quandt, Ph.D., Michigan State—population, Scandinavia, ethnic studies

Henry A. Raup, Ph.D., Illinois—national parks, conservation, Western Europe
Joseph P. Stoltman, Ed.D., Georgia—geographic education, cultural, Latin America (on leave, 1977-78)
George Vuicich, Ph.D., Iowa—geographic education, urban, quantitative methods

Western Washington State University

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING

DEGREES OFFERED: M.A., M.S.

GRANTED 7/1/76-6/30/77: 3

GRADUATE STUDENTS IN RESIDENCE: 24

NOT IN RESIDENCE: 10

CHAIRMAN: James W. Scott

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Thomas A. Terich, Department of Geography and Regional Planning, Western Washington State University, Bellingham, Washington 98225
Telephone (206) 676-3284

PROGRAMS AND RESEARCH FACILITIES: Seminars, supporting courses and a required thesis emphasize cultural and physical geography respectively in the M.A. and M.S. programs. The department offers special master's programs in Urban and Regional Planning and in Environmental Planning, the latter in conjunction with Huxley College. The department has an extensive map collection organized by a full-time curator, a media laboratory under direction of a staff cartographer, a cartographic laboratory, graduate research room, graduate offices, and access to IBM 360/40 and 7090 computers and a Calcomp plotter and interactive terminal system.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Quarter system, including summer. An undergraduate major in geography with grade point average 3.0 (4-point system) or better is normally required for admission to graduate degree status. Teaching assistant stipends are $3231 for the academic year; application deadline March 15, 1978. This deadline is especially important to those who apply for financial assistance.

STAFF:
Howard J. Critchfield, Ph.D., Washington, 1952, Professor—climatology, Southwest Pacific (Washington State Climatologist)
Jane H. Ehemann, Ed.D., Georgia, 1974, Assistant Professor—geographic education, Latin America

Eugene A. Hoerauf, M.A., Oregon, 1969, M. Libr., Washington, 1976, Cartographer

Robert L. Monahan, Ph.D., McGill, 1959, Professor—resources, Northlands

Debnath Mookherjee, Ph.D., Florida, 1961, Professor—urban, South Asia, planning (Director, Urban and Regional Planning Program)

Franklin C. Raney, Ph.D., UC, Davis, 1962, Associate Professor—water resources, biogeography

James W. Scott, Ph.D., Indiana, 1971, Associate Professor—historical, population (Director, Center for Pacific Northwest Studies)

Richard G. Smith, Ph.D., Wisconsin, 1965, Associate Professor—landforms, United States and Canada, Arctic, conservation

Thomas A. Terich, Ph.D., Oregon State, 1973, Associate Professor—urban and regional planning, physical, coastal studies

Robert W. Teshera, Ph.D., Washington, 1970, Associate Professor—political, United States and Canada

Daniel E. Turbeville, M.A., Western Washington, 1976, Map Curator

Manfred C. Vernon, J. D., Berlin, Ph.D., Stanford, Professor Emeritus of Political Science, Honorary Lecturer in Political Geography

University of Wisconsin

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.S. (Geography), M.S. (Cartography), Ph.D. (Geography)

GRANTED 7/1/76–6/30/77: 10 M.S., 14 M.S. (Cartography), 12 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**26 M.S.**	**21 M.S. (Cart.)**	**27 Ph.D.**
NOT IN RESIDENCE:	**6 M.S.**	**10 M.S. (Cart.)**	**18 Ph.D.**

CHAIRMAN: Joel L. Morrison

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Committee on Graduate Appointments, Department of Geography, The University of Wisconsin, Madison, Wisconsin 53706
Telephone (608) 262-3861

PROGRAMS AND RESEARCH FACILITIES: The Department offers a broad range of programs in systematic and regional geography, and a separate M.S. program in cartography. The Department cooperates freely in both graduate instruction and research guidance with numerous other departments of the University. It plays an active role in such interdisciplinary programs as African Studies, American Institutions, Asian Studies, Ibero-American and Luso-Brazilian Studies, Population Studies, and Urban and Regional Planning, Environmental Studies, and Water Resources.

An unusual variety of facilities for graduate study and research exists in Madison. Grouped conveniently in Science Hall with the Geography Depart-

ment are the Geography Library, the University's Map and Air Photo Library, the Cartographic Laboratory, and a geomorphology laboratory. Only a few hundred yard separates Science Hall from the Central University Library and the State Historical Society Library. Nearby are specialized reference libraries and the main computing center of the University. Madison, the state capital, houses most divisions of the state government and several federal agencies.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The types of financial assistance include the following appointments:

Teaching Assistantships: Duties ordinarily include about 5 to 8 hours per week of classroom teaching, for which the salary currently ranges from about $3390 to $5085 for the academic year.

Project and Research Assistantships: Duties involve the assistance of either staff members in their research projects or under the supervision of the Director of the University Cartographic Laboratory. Such duties aggregate not more than 20 hours per week. The salaries currently range from $4005 to $4896.

University Fellowships: These awards, requiring no departmental duties, are available through a competitive program administered by the Graduate School. They yield about $4212 for the academic year, plus remission of nonresident tuition fees. Advanced Opportunity (minority) Fellowships are also available.

Departmental Fellowships: The Department awards two Whitbeck Fellowships and in addition grants one University Fellowship and several NSF Traineeships.

Appointments are usually for 9 months (September to June, inclusive) and holders normally are exempt from the non-residence tuition fee which currently is $1014 per semester.

STAFF:

John P. AuWerter, Ph.D., Clark, 1976, Assistant Professor—economic, urban, Africa

Waltraud Brinkmann, Ph.D., Colorado, 1973, Assistant Professor—climatology, natural hazards (also Institute for Environmental Studies)

Reid Bryson, Ph.D., Chicago, 1948, D.Sc., Denison, 1971, Professor—climatology, environmental science (also Meteorology; Director, Institute for Environmental Studies)

Martin T. Cadwallader, Ph.D., UCLA, 1973, Assistant Professor—urban, economic, quantitative analysis

William M. Denevan, Ph.D., UC, Berkeley, 1963, Professor—cultural ecology, humid tropics, historical, Latin America (also Director, Ibero-American Studies)

Daniel F. Doeppers, Ph.D., Syracuse, 1972, Associate Professor—urban-social, Southeast Asia, historical

George H. Dury, Ph.D., London, 1951, D.Sc., London, 1971, Professor—geomorphology, paleoclimatology (also Geology)

Francis D. Hole, Ph.D., Wisconsin, 1943, Professor—soils, conservation, Wisconsin (also Soil Science)

Carol B. Jenner, Ph.D., Maryland, 1975, Assistant Professor—climatology, quantitative methods

James C. Knox, Ph.D., Iowa, 1970, Professor—geomorphology, paleohydrology (also Institute for Environmental Studies; Director, Center for Geographic Analysis)

Joel L. Morrison, Ph.D., Wisconsin, 1968, Chairman and Professor—cartography, mapping

Phillip C. Muehrcke, Ph.D., Michigan, 1969, Associate Professor—cartography, mapping (also Director, U.W. Cartographic Laboratory)

Clarence W. Olmstead, Ph.D., Michigan, 1951, Professor—agriculture, United States, Canada

Arthur H. Robinson, Ph.D., Ohio State, 1947, D.Litt., Miami (Ohio), 1966, Professor—cartography, mapping, history of cartography

Robert D. Sack, Ph.D., Minnesota, 1970, Associate Professor—political, economic, geographic thought

Randall D. Sale, M.S., Wisconsin, 1953, Professor—cartography, mapping (also Associate Director, U.W. Cartographic Laboratory)

Clare Stapleton, Ph.D., Northwestern, 1977, Assistant Professor—applied economic, population

Thomas R. Vale, Ph.D., UC, Berkeley, 1973, Assistant Professor—biogeography, natural resources

David Ward, Ph.D., Wisconsin, 1963, Professor—historical, urban, social, North America, Europe

Richard Hartshorne, Professor Emeritus
Henry S. Sterling, Professor Emeritus
Glenn T. Trewartha, Professor Emeritus

University of Wisconsin-Milwaukee

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S., Ph.D.

GRANTED 7/1/76–6/30/77: 5 Masters, 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 26 Masters 6 Ph.D.
NOT IN RESIDENCE: 9 Masters 18 Ph.D.

CHAIRMAN: Barbara Zakrzewska-Borowiecki

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Graduate Administrative Committee, Department of Geography, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin 53201
Telephone (414) 963-4866

PROGRAMS AND RESEARCH FACILITIES: Areas of faculty strength and emphasis are urban geography, climatology, Latin America, and Europe and the U.S.S.R.

Research by staff members and students on North America and the Northern Lands, and in terrain morphometry, regional geomorphology, soils geography, biogeography, cartography, settlement geography, maritime cultural geography, and the geography of the humid tropics is also pursued actively.

The research programs in urban geography emphasize city-region relationships, internal structure, comparative urban geography and historical evolution of cities and metropolitan areas, as well as relations of urban functions and land uses to transportation and metropolitan planning. The Department of Urban Affairs and The School of Architecture and Urban Planning as well as the Urban Research Center, strengthen geographical work in the urban field.

Training in climatology is supported by the standard courses in meteorology and hydrology. Available facilities include radiation-detecting and other meteorological equipment, a field station which includes a variety of ecosystems, and the Center for Great Lakes Studies. Research is being conducted currently on the climates of the Soviet Union, on energy and water budgets, air pollution, long range forecasting, and climatic change.

Emphases in Latin America are historical (European discovery and exploration), rural and abandoned settlements, agricultural, and the humid tropics. Research is assisted by a campus Center for Latin American Studies. Current research by staff and graduate students is being pursued in Argentina, Brazil, Colombia, Ecuador, Mexico, and Venezuela.

The Europe and U.S.S.R. program, supported by an undergraduate Certificate Program in Russian and East European Studies, involves both topical and regional analysis, with considerable emphasis on climate of the U.S.S.R., urban geography of West Germany, and comparative analysis of the East European countries.

The Department has an excellent Soils Laboratory, Cartographic and Remote Sensing Laboratory, and a Map Library.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system, fall semester ending before Christmas; summer session. About eight teaching assistantships (stipend currently $5166 to $5364 for 50% positions); students may compete for University of Wisconsin Fellowships (stipend currently $5062). There are also opportunities for Research and Project Assistantships, and non-resident tuition remission fellowships.

STAFF:

Werner Baum, Ph.D., Chicago, 1948, Professor (Chancellor, University of Wisconsin—Milwaukee)—meteorology

Karel Bayer, Ph.D., Charles University, Prague, 1960, Associate Professor—meteorology, dynamics of climate, Great Lakes research, urban climatology

Michael Day, Ph.D. candidate, Oxford—geomorphology, biogeography, environmental analysis

Clinton R. Edwards, Ph.D., UC, Berkeley, 1962, Professor—historical, maritime, Latin America

Robert C. Eidt, Ph.D., UCLA, 1954, Professor—rural settlement, Latin America, geochemistry

James J. Flannery, Ph.D., Wisconsin, 1956, Associate Professor—cartography, remote sensing, geography education

Donn K. Haglund, Ph.D., Pennsylvania, 1958, Associate Professor—economic, Canada, the Arctic

Lutz Holzner, Dr. rer. nat., Würzburg, 1964, Professor—urban, Western Europe, comparative urban

Paul E. Lydolph, Ph.D., Wisconsin, 1955, Professor—climatology, Soviet Union

Harold M. Mayer, Ph.D., Chicago, 1943, Professor (also Center for Great Lakes Studies)—urban, transportation, city and metropolitan planning, North America

David H. Miller, Ph.D., UC, Berkeley, 1953, Professor—meteorology, hydrology (joint appointment with Geological Sciences)

Harold M. Rose, Ph.D., Ohio State, 1960, Professor (Chairman, Department of Urban Affairs)—population, behavior in the urban environment

Robert Schmitt, Ph.D., Iowa, 1974, Assistant Professor (also Urban Affairs)—urban, quantitative methods

Norman R. Stewart, Ph.D., UCLA, 1963, Associate Professor—pioneer settlement, Latin America

Ruth Stoveken, M.S., Wisconsin, 1947, Assistant Professor—physical, Wisconsin

John C. Weaver, Ph.D., Wisconsin, 1942, Professor (President, University of Wisconsin)—agriculture, North America

Barbara Zakrzewska-Borowiecki, Ph.D., Wisconsin, 1962, Professor—terrain morphometry, regional geomorphology, Eastern Europe

University of Wyoming

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.S.T.

GRANTED 7/1/76–6/30/77: 1 M.A.

GRADUATE STUDENTS IN RESIDENCE: 18

HEAD: Phillip M. Fowler

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Professor Phillip M. Fowler, Head, Department of Geography, University of Wyoming, Laramie, Wyoming 82071
Telephone (307) 766-5201

PROGRAMS AND RESEARCH FACILITIES: At Wyoming the M.A. and M.S.T. graduate programs are individually designed for specialized training or structured for disciplinary breadth. In addition to training in methods of geographic research, cartography, quantitative spatial analysis, air photo and remote sensing, the Department emphasizes systematic specializations in urban-economic, political, physical, population-cultural, and an environmental option. In the latter case

Wyoming is ideally located and equipped for research in environmental problems. In response to growing needs, a new program in environmental and resource management has been added to the Department's curriculum. A combination of courses in geography, economics, law, natural sciences, recreation, and related fields provides an excellent interdisciplinary framework for this program. Its flexibility enables students to investigate a variety of critical problems in resource management such as land use planning for public lands, wildlife management, and the effect of energy resource development on environmental quality.

A training program in *Regional and Community Planning* was initiated in Fall 1975. The program is an interdisciplinary effort, involving various colleges and departments of the University; it is administered in the Geography Department. Program emphasis is on preparing individuals to function as effective regional, community, or environmental planners in Wyoming and other Rocky Mountain states. The degree that is earned in this program is the *professional* "Master in Planning" degree.

The Department has rapidly developing facilities for work in cartography, geomorphology, environmental studies, and remote sensing. An extensive library of computer programs, in conjunction with the Department's collection of aerial photographs and U.S.G.S. quadrangles at the 7 1/2 and 15 minute series, provides opportunities for geographic research in a variety of topics. In addition, the University of Wyoming's outstanding collection of western archival materials is available for research in historical geography.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:

Academic Plan—Plan A, with Thesis. Plan B with 2 papers. M.S.T. with one paper.

Admission Requirements—Applicants evaluated on an individual basis. Undergraduate backgrounds in the social or natural sciences and the humanities accepted. Deficiencies can be remedied during the graduate program.

Financial Aid—3 full-time Graduate Assistantships, paying a minimum of $3150 plus remission of tuition fees.

Semester System—At least 2 semesters in residence.

STAFF:

Ronald Beiswenger, Ph.D., Michigan, 1972, Associate Professor—conservation, environmental studies, world resources, biogeography

Hans Bleiker, Ph.D., M.I.T., 1972, Associate Professor—community and regional planning, problem-solving, decision-making processes

Robert H. Brown, Ph.D., Chicago, 1957, Professor—political and settlement geography, Wyoming, geographic thought, Rocky Mountain region

Phillip M. Fowler, Ph.D., Iowa, 1969, Associate Professor—urban, quantitative methods, economic

Jordan J. Louviere, Ph.D., Iowa, 1973, Assistant Professor—theoretical human, quantitative, transportation, behavioral

Lawrence M. Ostresh, Ph.D., Iowa, 1973, Assistant Professor—theoretical human, quantitative methods, urban-economic, cartography

Richard G. Reider, Ph.D., Nebraska, 1971, Associate Professor—soils, geomorphology, climatology

CANADIAN UNIVERSITIES

University of Alberta

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 17 Masters, 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**52 Masters**	**8 Ph.D.**
NOT IN RESIDENCE:	**33 Masters**	**6 Ph.D.**

CHAIRMAN: I. A. Campbell

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Department of Geography or Faculty of Graduate Studies, University of Alberta, Edmonton, Alberta, Canada T6G 2H4
Telephone (403) 432-3274

PROGRAMS AND RESEARCH FACILITIES: Individual graduate programs vary with the interests and training of the candidate. Minimum programs comprise three full-year courses for M.A./M.Sc. candidates who have completed four-year specialized degrees, and one course for Ph.D. candidates. A thesis is required of all graduate students, but there are no formal language requirements. All M.A./M.Sc. candidates must complete a course in cartography (if they have not previously done so) and a course in research methods.

In addition to access to a major library and computing center, research facilities include very generous photographic, cartographic and computing services; the University Map Collection; the Boreal Institute; research labs (geomorphology, population); and meteorological instrumentation near Edmonton.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:
Academic Plan: The teaching year extends from early September to mid-April, and is divided into two terms broken at Christmas. Some courses extend over the full period, but most are only half-year (one term).
Admission Requirements: A baccalaureate degree with at least second-class standing (65%) in the last two years of undergraduate work, and the approval of the Department.
Financial Aid:

(1) Fellowships, Scholarships and Bursaries—Supported by University, Provincial and foundation funds. Valued at up to $4800 for master's candidates, and up to $5500 for doctoral candidates.

(2) Graduate Assistantships—Valued at $3483 to $5497 dependent on qualifications. Approximately 12 hours per week on departmental duties is required during the 8-month academic year.

(3) Intersession Bursaries—A certain number, valued at $1461, are available to support thesis research by resident graduate students.

(4) Additional assistance—Available periodically from various agencies in connection with departmental and faculty research projects.

STAFF:

John F. Bergmann, Ph.D., UCLA, 1959, Associate Professor—historical, Latin America

Michael C. Brown, Ph.D., McMaster, 1970, Associate Professor—Karst geomorphology, microclimatology

Ian A. Campbell, Ph.D., Colorado, 1968, Professor and Chairman—fluvial processes, arid lands

Robert B. Charlton, Ph.D., Toronto, 1970, Associate Professor—meteorology

John H. England, Ph.D., Colorado, 1974, Assistant Professor—Quaternary history of the Canadian Arctic, paleoclimatic reconstruction

Kenneth J. Fairbairn, Ph.D., Melbourne, 1968, Associate Professor—inter-urban studies, consumer behavior

Don A. Gill, Ph.D., British Columbia, 1971, Professor—biogeography, periglacial geomorphology, Northern Lands, permafrost

Keith D. Hage, Ph.D, 1957, Chicago, Professor—meteorology

M. John Hodgson, Ph.D., Toronto, 1973, Assistant Professor—transportation, quantitative methods, spatial analysis

R. Geoffrey Ironside, Ph.D., Dunelm, 1965, Professor—industrial location policy, rural planning

Edgar L. Jackson, Ph.D., Toronto, 1974, Assistant Professor—environmental hazards, perceptions and attitudes, recreation

Denis B. Johnson, Ph.D., Belfast, 1969, Associate Professor—intra-urban studies, documentary film making

Leszek A. Kosinski, Ph.D., Warsaw, 1958, Professor—population, Eastern Europe

Arleigh H. Laycock, Ph.D., Minnesota, 1957, Professor—hydrology and water resources, Western Canada

Edward P. Lozowski, Ph.D., Toronto, 1970, Associate Professor—meteorology

Harold J. McPherson, Ph.D., McGill, 1967, Associate Professor—mountain geomorphology, environmental quality, natural hazards

Jean-Claude Muller, Ph.D., Kansas, 1974, Associate Professor—cartography

R. Bruce Rains, Ph.D., Alberta, 1969, Associate Professor—geomorphology

Erhard R. Reinelt, Ph.D., Alberta, 1964, Associate Professor—meteorology

Neil R. M. Seifried, Ph.D., Washington, 1969, Associate Professor—manufacturing, Eastern Canada, transportation

John Shaw, Ph.D., Reading, 1969, Associate Professor—glacial geomorphology, sedimentology

O. F. George Sitwell, Ph.D., Toronto, 1968, Associate Professor—history of geography, cultural landscape

Peter J. Smith, Ph.D., Edinburgh, 1964, Professor—recreation, political urban geography, urban planning

S. Ivan Smith, Ph.D., McGill, 1963, Associate Professor—applied climatology, tropical world, Africa, agricultural resources

William C. Wonders, Ph.D., Toronto, 1951, Professor—settlement, Northern Lands

University of British Columbia

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 6 M.A., 2 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**8 M.A.**	**7 M.Sc.**	**12 Ph.D.**
NOT IN RESIDENCE:	**11 M.A.**	**2 M.Sc.**	**5 Ph.D.**

HEAD: Robert H. T. Smith

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Registrar's Office, University of British Columbia, Vancouver, B.C., Canada V6T 1W5. Further information: Department of Geography, University of British Columbia, Vancouver, B.C., Canada V6T 1W5
Telephone (604) 228-2020

PROGRAMS AND RESEARCH FACILITIES: M.A., M.Sc., Ph.D. Programs:

A. Physical Geography, Emphasising Climatological and Geomorphological Processes—

1. Climatology: heat and water balances of active surfaces; energy balances at the micro, synoptic and macro scales; urban climatology.
2. Geomorphology: energy and mass balance studies in the Coast Mountains and Lower Fraser Valley of B.C.; physical processes in alpine, sub-alpine, and arctic areas; permafrost.

B. Human Geography, Emphasising Locational and Regional Analysis, and Humanistic, Behavioural and Ecological Approaches—

1. Locational and Regional Analysis: spatial organization and interaction including network studies; intraurban geography, emphasising policy studies; regional structure, development and policy; resource use and allocation, especially the location and use of commercial energy.
2. Humanistic, Behavioural and Ecological Approaches: historical studies with a humanistic emphasis of society and land in the light of changing values, perceptions and technology; social and behavioural studies of urban groups and urban spatial structures; ecological adaptations of land-based cultures, including past and present human ecology in Middle American lowlands.

The regional emphases of the department include Canada (especially western Canada and the Arctic); Southeast and East Asia (especially China); the Soviet Union and Eastern Europe; and Latin America. Courses are available in metho-

dology, philosophy of geography, and techniques appropriate for research in a broad area.

Interdisciplinary Programs—Participation in the Arctic and Alpine, Hydrology, Resource Science, Urban and Transportation, Asian and Slavonic and International Studies programs of the University.

Field Studies—Ongoing projects in the Western Arctic and Cordilleran regions of Canada and special projects in Latin America. The student usually has responsibility for research fund proposals but field work may be supported under grants to faculty members.

Other Facilities—In department: Extensive map and air photo holdings of B.C.; considerable calculating capacity; geomorphological laboratory; office space for graduate students; the department employs a computer programmer. In university: second largest library in Canada; access to Duplex IBM 360/67 computing system with mapping and graphic capabilities; Graduate Student Centre.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:

Academic Plan—Academic year, September 1–August 31. Two terms: September 1–December 21, January 3–April 30.

Admission Requirements—Honours or major degree in geography with at least upper Second Class Standing or a grade point average of 3.0 on a 4-point scale. Applicants from related fields will be considered.

Financial Aid—Scholarships: H. R. MacMillan fellowships and U.B.C. Graduate Faculty fellowships are open to superior students. Applications are made through the Head of the Department. Research funds are frequently available after a year in residence. Canada Council, Commonwealth, Ford Foundation, C.M.H.C. and D. of T. Fellowships are tenable at U.B.C. Applications are made directly to these organizations. Assistantships with stipend of $3600 (1976-77 level) are available for teaching laboratories and practicals during the eight-month academic year (early September to early May). There are other assistantships for the Summer Session.

STAFF:

M. J. Bovis, Ph.D., Colorado, 1974, Assistant Professor—geomorphology, snow avalanche hazards, statistical analysis

J. D. Chapman, Ph.D., Washington, 1958, Professor—economic (manufacturing and energy), philosophy of geography

M. Church, Ph.D., U.B.C., 1971, Assistant Professor—geomorphology

Richard Copley, M.A., UC, Berkeley, 1961, Senior Instructor—cultural/historical, Japan

K. Denike, Ph.D., Pennsylvania, 1973, Assistant Professor—urban, quantitative methods, transportation

J. S. Duncan, Ph.D. pending, Syracuse, Instructor—urban/social geography, South Asia

A. L. Farley, Ph.D., Wisconsin, 1960, Associate Professor—cartography, air photo interpretation, Pacific Northwest

Walter G. Hardwick, Ph.D., Minnesota, 1963, Professor—public aspects of urban development (on leave, 1977-78)

R. C. Harris, Ph.D., Wisconsin, 1964, Professor—historical, Canada

John Hay, Ph.D., London, 1970, Associate Professor—climatology

David Ley, Ph.D., Pennsylvania State, 1972, Associate Professor—behavioural approach to urban topics, quantitative methods

J. Ross Mackay, Ph.D., Montreal, 1949, Professor—arctic geomorphology, cartography, Canadian Western Arctic (on leave, 1977-78)

John Mercer, Ph.D., McMaster, 1971, Assistant Professor—urban, political

Margaret E. A. North, M.A., Kansas, 1961, Senior Instructor—plant geography

Robert N. North, Ph.D., U.B.C., 1968, Assistant Professor—economic development, U.S.S.R.

T. R. Oke, Ph.D., McMaster, 1967, Associate Professor—climatology (urban and micro)

J. Lewis Robinson, Ph.D., Clark, 1946, Professor—Canada, philosophy of geography

Marwyn Samuel, Ph.D., Washington, 1971, Assistant Professor—historical, China, philosophy of geography (on leave, Fall term 1977)

Alfred H. Siemens, Ph.D., Wisconsin, 1964, Associate Professor—cultural, Latin America

H. O. Slaymaker, Ph.D., Cambridge, 1968, Associate Professor—fluvial geomorphology/hydrology, British Columbia

Robert H. T. Smith, Ph.D., Australian National, 1962, Professor and Head—economic

J. K. Stager, Ph.D., Edinburgh, 1962, Professor—Canadian Arctic (part-time, 1977-78)

Graeme Wynn, Ph.D., Toronto, 1974, Assistant Professor—historical, Canada

University of Calgary

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 3 M.A., 3 M.Sc., 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 17 Masters 8 Ph.D.

NOT IN RESIDENCE: 6 Masters 4 Ph.D.

ACTING HEAD (1977-78): L.A. Rosenvall

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Program, Department of Geography, The University of Calgary, Calgary, Alberta, Canada T2N 1N4
Telephone (403) 284-5584

PROGRAMS AND RESEARCH FACILITIES: Programs of graduate study are offered in most fields of Geography at the Masters and the Doctoral level and all involve course work and a dissertation. The majority of present graduate students are at the Masters level and are working in the fields of: geomorphology, biogeogra-

phy, climatology, resource utilization, urban and economic studies, social and cultural geography. A similar emphasis occurs at the Doctoral level where programs are available in many areas of human and physical geography including the geography of resources. Faculty and graduate studies focus primarily upon Western Canada and the Americas.

The department has well-equipped laboratories for cartography, soils, biogeography, geomorphology, and climatology (includes the University Weather Research Station) and has materials and equipment for field work, air photo interpretation and quantitative analysis (including remote access to the University's computer facilities—CDC 6400, IBM 360-50 and associated hardware).

Geography is an active participant in the work of: The University Environmental Sciences Centre (situated in the Kananaskis Valley); the Institute for Transportation Research; the Committee on Resources and the Environment; the Urban Studies Committee; the Latin American Studies Committee; and the Environmental Sciences (Minor) Program. The University Library has good geography holdings with large collections of current periodicals, government documents, and maps.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:

Academic Plan: Year system; two four-month sessions (September—April), and an inter-session normally dedicated to thesis work (May—August).

Admission Requirements: Baccalaureate degree with an average of at least B in the work of the last two undergraduate years and recommendation of the department. Early application is advised as offers of departmental financial aid are usually made by February for September entry, or September for January entry.

Financial Aid: Graduate research, teaching, and service assistantships range from $5724 to $6825 (plus remission of fees and travel allowance) depending upon the particular assistantship and year of study at Calgary.

University and Provincial awards range to $6500 (details in the Faculty of Graduate Studies Calendar). In addition graduate students may be eligible for awards offered by The Canada Council, National Research Council, Central Mortgage and Housing Corporation, Transportation Commission, and other agencies.

STAFF:

Brenton M. Barr, Ph.D., Toronto, 1968 Professor—industrial location, regional economic development, Soviet Union, Western Canada

Lawrence D. Cordes, Ph.D., British Columbia, 1973, Associate Professor—biogeography, soils, wildland ecosystems

Michael R. C. Coulson, Ph.D., Kansas, 1966, Associate Professor—cartography, urban

Wayne K. D. Davies, Ph.D., Wales, 1964, Professor and Associate Dean, Faculty of Graduate Studies—urban, methodology, political

Mario B. Giovinetto, Ph.D., Wisconsin, 1968, Professor—physical climatology, climatic change, glaciology

Alfonso Gonzalez, Ph.D., Texas, 1962, Professor—Latin America, socioeconomic development, population

Louis Hamill, Ph.D., Washington, 1963, Associate Professor—renewable resources, wildland environments, recreation and tourism, landscape analysis

Stuart A. Harris, Ph.D., London, 1968, Professor—geomorphology, soils, Quaternary studies

Peter D. Herrem, M.A., Minnesota, 1971, Instructor—cultural and historical geography

David R. W. Jones, Ph.D., London, 1964, Associate Professor—international trade, political, cultural and economic geography of the Tropics

Herbert G. Kariel, Ph.D., Iowa, 1962, Professor—social, diffusion, research procedures

Arthur G. Limbird, Ph.D., Michigan State, 1971, Associate Professor—soils, environmental analysis, remote sensing

Richard P. Momsen, Jr., Ph.D., Minnesota, 1960, Professor—Brazil, Latin America, applications of remote sensing to regional development planning

Lawrence C. Nkemdirim, Ph.D., London, 1967, Professor—climatology, hydrology, analytic methods

Lynn A. Rosenvall, Ph.D., UC, Berkeley, 1972, Associate Professor and Acting Department Head (1977-78)—historical and cultural, Southwest Pacific

Derald G. Smith, Ph.D., Johns Hopkins, 1973, Associate Professor—fluvial geomorphology, environmental geomorphology of urban areas

Nigel M. Waters, Ph.D. candidate, Western Ontario, Assistant Professor—transportation, economic, analytical methods

Carleton University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A. (Ph.D. possible in cooperating departments)

GRANTED July 1, 1976–June 30, 1977: 7 M.A.

GRADUATE STUDENTS IN RESIDENCE: 17 full-time

NOT IN RESIDENCE: 21 part-time

CHAIRMAN: T.P. Wilkinson

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Supervisor of Graduate Studies, Department of Geography, Carleton University, Colonel By Drive, Ottawa, Ontario, Canada K1S 5B6
Telephone (613) 231-2641

PROGRAMS AND RESEARCH FACILITIES: The principal theme at the graduate level is Interdependent Development, especially as applied to Canada and those Third World nations with which faculty are concerned. Emphasis is being placed on current philosophies, systems and paradigms of development and on the role of processes and values in solving real problems. In addition to constraints on development caused by the physical environment, the geotechnical problems of cold regions also have high research priority in physical geography. A high level of flexibility is available in the formulation of the student's program so long as it

falls within the research interests of the department. Since effective pursuit of the kinds of problems involved requires a cooperative role from faculty, the student's research committee may be drawn from several specialist groups from both within and outside the department.

In addition to the specific research interests identified below for each faculty member, the Department has close liaison with other academic departments and with the Institute of Canadian Studies, The School of International Affairs, and the Institute of Soviet and East European Studies of the University. Study and research are supported by highly qualified staff in the fields of data processing, instrumentation design and fabrication, and cartography. Detailed descriptions are available of laboratory facilities for basic physical and geotechnical studies, cartography and computer mapping, and other services and facilities.

Location in Ottawa also provides access to more than 50 specialized libraries many of which are in Federal Government Departments. The National Library National Archives and Statistics Canada are among these important data sources.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The minimum requirement for the M.A. is five credits of which the thesis has a value of two. Registration may begin in the fall, winter, or summer term. The minimum *admission requirement* is normally a B.A. or B.Sc. Honours degree or its equivalent with upper second (B+) standing. Other applicants may be accepted into a Qualifying Year program.

Financial Assistance: Carleton University offers graduate scholarships and assistantships in amounts comparable to those available from other Ontario universities. Other fellowships and scholarships are available from the Ontario Government, Canada Council, National Research Council, Central Mortgage and Housing Corporation, and other organizations.

FACULTY INTERESTS:

Duncan M. Anderson, M.Sc., Western Ontario—land resource use, recreational geography, Canada

David Bennett, Ph.D., Liverpool—social (on leave, Spring 1978)

John Clarke, Ph.D., Western Ontario—historical (Canada) (on leave, 1977-78)

Denis P. Fitzgerald, Ph.D., Minnesota—rural development in Southeast Asia, frontier settlement in Asia and the sub-Arctic (on leave, 1977-78)

Michael F. Fox, M.A., Carleton—intra-urban location, instructional development

J. Peter Johnson, Jr., Ph.D., McGill—northern and alpine environments, geomorphology

David B. Knight, Ph.D., Chicago—cultural-historical, political geography of developing countries

Gordon C. Merrill, Ph.D., UC, Berkeley—cultural geography and development

D. Michael Ray, Ph.D., Chicago—general systems theory, urban and regional development in Canada, manufacturing geography (on leave, 1977-78)

Michael W. Smith, Ph.D., British Columbia—climatology, micro-climatology, periglacial environments, computer simulation

D.R.F. Taylor, Ph.D., Edinburgh—development processes and regional development in Africa, cartography (with special reference to geographical information systems)

J. Kenneth Torrance, Ph.D., Cornell—frozen soils, geochemistry of clays

John E. Tunbridge, Ph.D., Bristol—urban

Philip E. Uren, Ph.D., Ottawa—political, international relations, Eastern Europe and U.S.S.R.

A. Iain Wallace, D. Phil., Oxford—industrial location, transportation and resources

Thomas P. Wilkinson, Ph.D., Newcastle—drainage basin processes

Peter J. Williams, Fil. Dr., Stockholm—frozen soils, physical-chemical processes in cold environments

G. Clarke Topp, Ph.D., Wisconsin (Adjunct Professor)—soils

University of Guelph

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc.

GRANTED July 1, 1976-April 30, 1977: 2 M.A., 1 M.Sc.

GRADUATE STUDENTS IN RESIDENCE: 15

NOT IN RESIDENCE: 3

CHAIRMAN: G. T. Bloomfield

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Graduate Committee, Department of Geography, University of Guelph, Guelph, Ontario, Canada NIG 2WI
Telephone (519) 824-4120, ext. 2171

PROGRAMS AND RESEARCH FACILITIES: The M.A. program emphasizes rural geography which covers a wide range of faculty interests from historical studies to mathematical model building, and from studies of decision making on the farm to studies of the changing form and function of rural settlement, mainly within Canada. Course work and research opportunities are also provided in urban geography, regional development, historical geography, and political geography. The library is especially strong in nineteenth and twentieth century agricultural sources.

The M.Sc. program emphasizes a physical, quantitative approach including both field and laboratory experimentation and measurement. Areas of faculty interest include slope stability and strength of landforming materials; aeolian sediment transport; periglacial processes; Quaternary landforms; and coastal

processes. The department has fully equipped geomorphology labs. There is close cooperation and interaction with geology and soil science faculty in the Department of Land Resource Science and with Agricultural Engineering (Hydrology).

The programs are strengthened by graduate courses available from other departments, espcially from the Centre for Resources Development, the Asian Studies Program, and from the resources of the Ontario Argicultural College. Geography students interested primarily in Resource Analysis may follow a multidisciplinary program through the Centre for Resources Development.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Trimester system: entry into programs in September, January or April. Admission requirements: a B average in honors Geography B.A. or equivalent. Financial aid up to $5300 (Can.) per year (including scholarships). All programs require course work and thesis.

STAFF:

Gerald T. Bloomfield, Ph.D., Nottingham, 1964—urban-industrial, transport, rural settlement, New Zealand

Fredric A. Dahms, Ph.D., Auckland, 1966—geography and planning, historical geography of settlements

Robin G. Davidson-Arnott, Ph.D., Toronto, 1975—geomorphology, coastal studies

Barry D. Fahey, Ph.D., Colorado, 1971—periglacial geomorphology, permafrost

Anthony M. Fuller, Ph.D., Hull, 1972—agricultural, rural development, Italy (also Director, Rural Development Outreach Program)

G. Patrick Gough, M.A., Wisconsin, 1960—manufacturing, transportation

Phillip D. Keddie, Ph.D., Waterloo, 1976—agricultural, rural settlement, Canada

Kenneth Kelly, Ph.D., Toronto, 1968—cultural, historical geography of Ontario, Latin America

Reid D. Kreutzwiser, M.A., Waterloo, 1973, Ph.D. candidate, Western Ontario—resource management, recreation

Julius A. Mage, Ph.D., Waterloo, 1974—agricultural, rural Canada

Michael R. Moss, Ph.D., Sheffield, 1973—biogeography, biotic resources, environmental pollution

William G. Nickling, Ph.D., Ottawa, 1976—geomorphology, aeolian sediment transport, slopes

Barry E. Smit, Ph.D., McMaster, 1977—agricultural, quantitative methods

Kok-Chiang Tan, Ph.D., London, 1966—political, economic development, Southeast Asia, China, the Third World

Jacqueline S. Wolfe, Ph.D., McMaster, 1976—political, Africa, climatology

Université Laval

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: maîtrise ès arts (M.A.), doctorat ès lettres (Ph.D.)

GRANTED July 1, 1976–June 30, 1977: 12 Masters, 0 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 77 Masters 10 Ph.D.

NOT IN RESIDENCE: 21 Masters 4 Ph.D.

CHAIRMAN: Paul-Yves Denis

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Directeur, Etudes de 2e et 3e Cycles, Département de Géographie, Université Laval, Québec 10, Québec, Canada G1K 7P4

PROGRAMS AND RESEARCH FACILITIES: Programs: (1) Physical Geography and Geomorphology, (2) Cultural Geography, (3) Social and Economic Geography, emphasis on North America, (4) Cartography, (5) Toponymy, and (6) Geographical Bases of Planning (Aménagement). The latter program is integrated in a university-wide multi-disciplinary program.

Research Facilities: Well-equipped physical geography and cartographic laboratories; numerous desk calculators; digital plotter; APL terminal connected to computer center; computer center consisting of IBM 360 (model 50) and IBM 370 (model 155) located adjacent to department; excellent library facilities including one of the most complete map libraries in Canada. As the university is situated in the provincial capital and historical and cultural center of French Canada, numerous government facilities and archives are available. The department also enjoys close relations with the Center for Northern Studies and Center for Regional Planning and Development.

The department also publishes a quarterly geographical review, *Cahiers de géographie de Québec.*

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:

Academic plan: Two 15 week trimesters, September to May.

Admission: An honours degree (Canada) or equivalent degree is necessary for admittance to the M.A. program. The doctoral program requires a candidate to have a Master's degree or its equivalent. A speaking knowledge of the French language is necessary though theses may also be written in English.

Financial Aid: A number of teaching and research assistantships ranging in value from $1800 to $3600 are offered.

STAFF:

Michel Allard, Ph.D. candidate, McGill, Assistant Professor—geomorphology

Marcel Bélanger, D. d'U., Grenoble, Associate Professor—cultural, geographic thought, Quebec

Jacques Bernier, Ph.D. candidate, Edinburgh, Associate Professor—political, Africa (on leave, 1977-78)

Luc Bureau, Ph.D., Minnesota, Associate Professor and Editor, Cahiers de géographie de Québec—rural, perception, planning

Paul Bussières, D.E.S., Laval, Associate Professor—economic, transportation, geography of energy

Peter Brooke Clibbon, D. ès L., Laval, Professor—land use, rural and recreational planning (aménagement)

Rodolphe De Koninck, Ph.D., Singapore, Associate Professor—cultural, problems of developing countries, Southeast Asia

Paul-Yves Denis, D. ès Ph. y L. (geografia), Cuyo (Argentina), Professor—Latin America, urban

Henri Dorion, M.A., Laval, Professor—toponymy, political (on leave, 1976–77)

Louis-Edmond Hamelin, D. d'U., Grenoble, Professor and Researcher, Center for Northern Studies—general geography, Canada, the North

André Hufty, D. ès S., Liège, Professor—climatology

Francois Hulbert, Docteur de 3e cycle, Rennes, Assistant Professor—regional and urban planning (aménagement), economic

Jacques Letarte, Diplôme de l'Ecole Pratique des Hautes Etudes, Paris, Associate Professor—cartography, photo interpretation

Dean Louder, Ph.D., Washington, Associate Professor—social and economic (on leave, 1977-78)

Christian Morissonneau, Ph.D. candidate, McGill, Assistant Professor—historical

Jean Raveneau, Docteur de 3e cycle, Strasbourg, Associate Professor—thematic and computer mapping, population

Gilles Ritchot, D. d'U., Strasbourg, Associate Professor—geomorphological cartography, structural geomorphology

Maurice Saint-Yves, M.A., Laval, Associate Professor—geographic education, regional geography, Canada

Germain Tremblay, D. ès S., Paris, Associate Professor—geomorphology

Louis Trotier, L. ès L., Laval, Professor—urban

Paul-Yvon Villeneuve, Ph.D., Washington, Assistant Professor—urban social, theoretical geography, quantitative methods

One additional position to be filled.

The University of Manitoba

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 7 M.A., 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**24 M.A.**	**3 Ph.D.**
NOT IN RESIDENCE:	**16 M.A.**	**3 Ph.D.**

HEAD: W. J. Brown

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Chairman, Graduate Affairs Committee, Department of Geography, The University of Manitoba, Win-

nipeg, Manitoba, Canada R3T 2N2
Telephone (204) 474–9256

PROGRAMS AND RESEARCH FACILITIES: Graduate research opportunities are available in many aspects of human geography, notably in such fields as agricultural, cultural, historical, population, rural settlement, urban and industrial geographies, and in land utilization and resource management, regional development, tourism and recreation, and environmental cognition. In physical geography, research training exists mainly in climatology, geomorphology, hydrology, and associated studies of natural hazards. Most graduate research focusses on western Canada, but recent theses have included India and Africa. Studies of Winnipeg and other Manitoban settlements, especially in the North, continue to be numerous. Ample scope exists for research on recreation and other resources of Manitoba, the cultural and historical geographies of the Prairies, and the spectrum of economic activities in this region. Energy balance and hydroclimatological investigations, erosion and mass wasting studies of slopes, and fluvial geomorphology dominate research endeavours in Manitoban physical geography.

The University's IBM 370-168 computer has extensive geographic representation devices, and is available to graduate students. The Department has Olivetti-Underwood Programma 652 and 101 computers and electronic calculators. It possesses a geomorphological research laboratory, cartographic facilities, and a map library. The Dafoe, Science and Engineering libraries house approximately 850,000 volumes and possess a large range of materials pertinent to geographical research. Interdisciplinary units on campus include the Agassiz Centre for Water Studies, the Centre for Transportation Studies, and the Natural Resource Institute. Off campus, a unique facility for those wishing to pursue research in historical geography is Winnipeg's recently acquired archives of the Hudson Bay Company.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: M.A. program: 1 year of courses (in Geography and related fields) plus thesis. Admission with 'B' standing in Hons. Geography degree, or 'B' in B.A. (Gen.) degree, Geography major, followed by pre-M.A. year of courses. Ph.D. program: 2 years courses plus thesis: admission with M.A./M.Sc. Geography. University fellowships (up to $4400 per year), graduate teaching assistantships (up to $3600), and other assistantships and Department awards are available. Two term (September-April) system.

STAFF:

J. S. Brierley, Ph.D., Edinburgh, 1972, Assistant Professor—agricultural, Caribbean
W.J. Brown, Ph.D., London, 1965, Associate Professor and Head—geomorphology
A. J. W. Catchpole, Ph.D., Durham, 1966, Professor—climatology, prairies
R. H. Foster, Ph.D., UC, Berkeley, 1975, Assistant Professor—urban and transportation, North America
B. Kaye, Ph.D., London, 1977, Assistant Professor—historical, Western Canada
Z. Mieczkowksi, Ph.D., Moscow, 1954, Associate Professor—tourism and recreation

J.D. Milton, Ph.D. candidate, Western Australia, Lecturer—climatology,
D.W. Moodie, Ph.D., Alberta, 1972, Associate Professor—historical, cultural, Western Canada
J.R. Rogge, Ph.D., London, 1968, Associate Professor—population, settlement, Africa, Canadian North
H. L. Sawatzky, Ph.D., UC, Berkeley, 1967, Associate Professor—land utilization, recreational and cultural geography, Canada, Latin America
V. Smil, Ph.D., Pennsylvania State, 1972, Associate Professor—energy, environmental pollution and protection, China
G.C. Smith, Ph.D., McMaster, 1974, Assistant Professor—urban, environmental cognition, quantitative methods
L.P. Stene, Ph.D., Western Ontario, 1976, Assistant Professor—geomorphology, Western Canada
R. C. Tiwari, Ph.D., Reading, 1964, Associate Professor—urban, India, Africa
D. Todd, Ph.D., London, 1975, Assistant Professor—industrial location and regional development

Additional staff member to be appointed.

PROFESSOR EMERITUS:

T. R. Weir, Ph.D., Professor of Geography

McGill University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc., M.Ed., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 6 Masters, 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**17 Masters**	**13 Ph.D.**
NOT IN RESIDENCE:	**12 Masters**	**16 Ph.D.**

CHAIRMAN: B. J. Garnier

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Affairs, Department of Geography, McGill University, 805 Sherbrooke Street West, Montreal, Quebec, Canada H3A 2K6

PROGRAMS AND RESEARCH FACILITIES: The research and supervision interests of the department fall into the following clusters: (1) *The urban environment:* Residential behavior and choice. Urban administrative systems and politics. Urban climate and pollution. Perception of environmental quality. Trip distribution modelling. Location-allocation problems. Urban history and ethnic studies. (2) *Spatial order in economic activity and development:* Spatial dynamics of industrialization. Inter-industry linkages. Inequality in economic development. Spatial pattern, urbanization and stagnation in developing countries. Trade and marketing. Tourism. (3) *Cultural adaptation and human ecology:* Cultural and

biological bases of human adaptation and evolution. Analysis of man-environment systems. Community energetics. Innovation and change. (4) *Process in the atmosphere and biosphere:* Microclimatology, physical and applied. Plant/atmosphere and plant/soil relationships. Use of energy by plants. Soil formation and process. Conservation of ecosystems. (5) *Water and landscape:* Runoff from rain and snowmelt. Streamflow, sedimentation and water quality. Soil, rock and fluid mechanics and landscape. Hillslope processes. Coastal processes. (6) *Glacial and periglacial studies:* Ice action. Periglaciation in soil and landscape evolution. Permafrost. Snowmelt. Quaternary landscape evolution. (7) *Remote sensing and cartography:* Data acquisition by air photo and imagery interpretation. Terrain analysis, resource and land-use inventory. Analysis, symbolization and reproduction of maps as research and communication methods. Automated cartography.

Regional concentrations of departmental interest are in the Montreal area, maritime eastern Canada, the Canadian North and Greenland, and tropical America including the Caribbean. Individual staff members also have interests in East Africa, the Pacific and Scandinavia.

The department has close association with the Centre for Developing-Area Studies and the Urban Planning Program, and also with the Arctic Institute of North America. Research facilities available include:

In Montreal

(a) Laboratories for air photo interpretation and cartography, biogeography, climatology, geomorphology, glaciology;
(b) Departmental computing facilities and access to IBM 370/155 and 360/55 computers and Calcomp facilities;
(c) Map library—100,000 maps, air photo collection with emphasis on Canadian North, Quebec, selected Caribbean islands, and Guyana; access to project and private book, report and reprint collections on savanna environments, glaciology, terrain analysis, Greenland, Caribbean, Pacific.

Outside Montreal

The Department has access to facilities in the university's field stations at Axel Heiberg Island (N.W.T.), Schefferville (P.Q.), Mont St. Hilaire (P.Q.), and Barbados (W.I.).

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Graduate studies are administered by the Faculty of Graduate Studies and Research and a Departmental Graduate Affairs Committee; admission requirement is that of Honours degree (Canada) or equivalent specialization (U.S.)—a qualifying year is possible; Master's degree requires two resident sessions, while Ph.D. requires two years in addition to Master's year; M.Ed. is conducted in conjunction with the Faculty of Education; all degrees (except M.Ed.) require thesis; normally 12 or more departmental assistantships (full or half-time) and research assistantships are awarded at a level of Master's $3500 and Ph.D. $3860 for 8 months, with free tuition, 12 hours work per week; competitive summer stipends of up to $1000; assistance is also available for fieldwork through research project funds.

STAFF:

Warwick Armstrong, Ph.D., New Zealand, 1970, Associate Professor—resource and development, Third World (Latin America)

J. Brian Bird, M.A., Cambridge, 1949, Professor—geomorphology, Arctic and Caribbean

J. H. Bradbury, Ph.D., Simon Fraser, 1977, Assistant Professor—economic, Canada

Michael A. Carson, Ph.D., Cambridge, 1967, Associate Professor—engineering geomorphology, with special reference to landslides and fluvial processes

J. J. Drake, Ph.D., McMaster, 1973, Assistant Professor—hydrology, geochemistry

R. Norman Drummond, Ph.D., McGill, 1965, Associate Professor—cartography, Quebec (on leave to December 31, 1977)

Gordon Ewing, Ph.D., McMaster, 1971, Assistant Professor—urban, behavioral

Benjamin Garnier, M.A., Cambridge, 1943, Professor and Chairman—climatology, Caribbean and Southeast Canada

Theo L. Hills, Ph.D., McGill, 1967, Professor—cultural ecology, Caribbean

Peter G. Holland, Ph.D., Australian National, 1968, Associate Professor—biogeography, Canada

W. Kemp, M.A., Michigan State, 1962, Assistant Professor—human, Arctic studies and northern research (on leave to May 31, 1978)

John E. Lewis, Ph.D., Illinois, 1972, Assistant Professor—bioclimatology, physiological climatology, urban climatic environments

Jan Lundgren, Ph.D., Stockholm, 1964, Associate Professor—economic development, Caribbean and Quebec

Bryan H. Massam, Ph.D., McMaster, 1969, Associate Professor—political, economic

T. R. Moore, Ph.D., Aberdeen, 1971, Associate Professor—soils (on leave to August 31, 1978)

Fritz Müller, Ph.D., Zurich, 1957, Honorary Professor—glaciology, Arctic archipelago

L. Müller-Wille, D. Phil., Westsälische Wilhelms-Universität, 1971, Assistant Professor—circumpolar

Sherry Olson, Ph.D., Johns Hopkins, 1965, Associate Professor—social, urban

John T. Parry, Ph.D., McGill, 1965, Professor—air photo interpretation, Canada

Eric Waddell, Ph.D., Australian National, 1969, Associate Professor—social, Caribbean and Melanesia (on leave to December 31, 1977)

McMaster University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 13 Masters, 4 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 37 Masters 12 Ph.D.

NOT IN RESIDENCE: 8 Masters 6 Ph.D.

CHAIRMAN: Derek C. Ford

FOR CATALOG AND FURTHER INFORMATION WRITE TO: The Chairman, Department of Geography, McMaster University, Hamilton, Ontario, Canada L8S 4K1
Telephone (416) 525-9140, ext. 4534

PROGRAMS AND RESEARCH FACILITIES: Research is conducted by the members of the staff in their areas of specialization.

The research facilities include a large map library, cartographic and calculating equipment, laboratories for work in geomorphology, microclimatology (including a field laboratory), pedology, and remote sensing, and direct access to the University Computing Centre (IBM 7040 and C.D.C. 6400).

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Admission Requirements:* A standing of Class I (A) or upper Class II (B plus) in previous academic work.

Financial Aid: 1. National Research Council Fellowships. 2. C.M.H.C. Scholarships for urban-related research. 3. Canada Council Doctoral Fellowships. 4. University Scholarships. 5. Assistantships: Candidates for the Ph.D.: $6000; candidates for M.A. or M.Sc.: $4880.

Assistantships entail 10 hours per week of teaching or research during the September-April academic year.

Academic Plan: Year, from mid-September to early April, divided into two terms.

STAFF:

John A. Armon, Ph.D., McMaster, 1975, Assistant Professor—coastal geomorphology, fluvial

Brian T. Bunting, Ph.D., London, 1971, Professor—pedology

Andrew F. Burghardt, Ph.D., Wisconsin, 1958, Professor—political

John A. Davies, Ph.D., London, 1966, Professor—radiation balance climatology

Michael J. Dear, Ph.D., Pennsylvania, 1974, Assistant Professor—urban planning

Derek C. Ford, D. Phil., Oxford, 1963, Professor and Chairman—karst and mountain geomorphology, Quaternary chronology

R. Louis Gentilcore, Ph.D., Maryland, 1950, Professor—historical

Frederick L. Hall, Ph.D., Chicago, 1972, Assistant Professor—transportation, urban planning (joint appointment with Civil Engineering)

Frank G. Hannell, Ph.D., Bristol, 1952, Professor—microclimatology

Philip J. Howarth, Ph.D., Glasgow, 1968, Associate Professor—remote sensing, glacial geomorphology

Peter R. Jones, Ph.D., Pennsylvania, 1975, Assistant Professor—spatial models

Leslie J. King, Ph.D., Iowa, 1960, Professor—urban growth models

Kao-Lee Liaw, Ph.D., Clark, 1973, Assistant Professor—migration theory, linear models

S. Brian McCann, Ph.D., Cambridge, 1961, Professor—coastal geomorphology, fluvial

Darrell A. Norris, Ph.D., McMaster, 1976, Assistant Professor—historical, cartography

George Papageorgiou, Ph.D., Ohio State, 1970, Associate Professor—urban, spatial models

Lloyd G. Reeds, Ph.D., Toronto, 1956, Professor—agricultural
Wayne R. Rouse, Ph.D., McGill, 1965, Professor—heat and water balance climatology
R. Shaw, Ph.D., Edinburgh, 1977, Post-Doctoral Teaching Fellow—glacial, periglacial
S. Martin Taylor, Ph.D., British Columbia, 1974, Assistant Professor—behavioural
Grant I. Thrall, Ph.D., Ohio State, 1975, Assistant Professor—urban models
Michael J. Webber, Ph.D., Australian National, 1967, Associate Professor and Associate Chairman—location theory, entropy maximizing models
Ming-ko Woo, Ph.D., British Columbia, 1971, Assistant Professor—hydrology
Harold A. Wood, Ph.D., Toronto, 1958, Professor—Latin America

Memorial University of Newfoundland

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc.

GRANTED July 1, 1976–June 30, 1977: 1 M.Sc.

GRADUATE STUDENTS IN RESIDENCE: 3

NOT IN RESIDENCE: 0

HEAD: Dr. M. J. Scarlett

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Maurice J. Scarlett, Department of Geography, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1C 5S7
Telephone (709) 753–1200, ext. 2617

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography at Memorial University offers programmes leading to the M.A. and M.Sc. degrees. Students may commence their programme in Fall, Winter, or Spring semesters, the programme of study and research normally requiring two years of full-time work. Candidates are required to take at least six one-semester graduate courses in the programme agreed upon with the Head of the Department and a supervisor appointed from the faculty. Courses in other disciplines may be taken and candidates may be required to take an examination in a foreign language should the research require it. The second year of study will normally be devoted to the writing of a thesis.

The Department houses a working map collection which includes a depository of Canadian Government maps and an extensive aerial photograph collection. A professionally equipped cartographic laboratory and photo-reproduction facility provide service for manuscript reproduction. The Department also possesses computer hardware in the forms of digitizer, key punch, and terminal facilities linked with the University IBM 370/155 computer system. Other Depart-

mental facilities include a palynology laboratory, rainfall simulation equipment and field equipment for geomorphology, hydrology and climatology research.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Memorial University operates on a semester system. Admission requires a Bachelor's degree with Honours or its equivalent. Applicants without this qualification may be admitted with the requirement that additional undergraduate courses be taken at the discretion of the Department and with the approval of the Committee on Graduate Studies. A certificate of proficiency in English is required if the applicant's native language is other than English or if he has not received his undergraduate instruction in English.

Limited fellowships—bursaries and grants are available from the Province, the University or the University's Institute of Social and Economic Research. The Department also provides teaching and research assistantships of varying amounts according to ability and need.

STAFF:

William H. Allderdice, Ph.D., Columbia, 1972, Assistant Professor—economic, rural, Latin America

Colin E. Banfield, Ph.D., Wales, 1970, Associate Professor—climatology, air pollution

Karyn G. Cooper, B.Sc., Memorial, 1974, Lecturer—introductory geography, biogeography

Dianne L. Draper, M.A., Victoria, 1973, Lecturer—introductory geography, resource management

Simon M. Evans, Ph.D., Calgary, 1976, Co-ordinator at Corner Brook—introductory geography, cultural, Western Canada

Geoffrey H. Farmer, M.A., Alberta, 1967, Associate Professor—introductory geography, Caribbean

Gordon Handcock, M.A., Memorial, 1970, Assistant Professor—introductory geography, rural settlement

Alan G. Macpherson, Ph.D., McGill, 1969, Associate Professor—historical, Northern North Atlantic

Joyce Brown Macpherson, Ph.D., McGill, 1966, Associate Professor—geomorphology, air photo interpretation, palynology

John J. Mannion, Ph.D., Toronto, 1971, Associate Professor—rural settlement, cultural

Patrick W. Naughton, M.Sc., Alberta, 1972, Lecturer—introductory geography, climatology, perception

W. Stan Nowak, Ph.D., London, 1966, Associate Professor—fisheries, economic oceanography, Europe

Robert J. Rogerson, M.Sc., McGill, 1967, Assistant Professor—glacial geomorphology, hydrology, Arctic

Chesley W. Sanger, M.A., Memorial, 1973, Assistant Professor—introductory geography, historical, urban

Maurice J. Scarlett, Ph.D., Pittsburgh, 1970, Professor and Head of Department—economic, transportation

Christopher Sharpe, Ph.D., Toronto, 1976, Assistant Professor—introductory and advanced urban geography

Michael Staveley, Ph.D., Alberta, 1973, Associate Professor—historical, population, Soviet Union

Keith J. Storey, Ph.D., Western, 1977, Assistant Professor—economic, regional development

William F. Summers, Ph.D., McGill, 1957, Professor—conservation, Newfoundland

William H. Yoxall, Ph.D., Dublin, 1975, Associate Professor—fluvial and experimental geomorphology

University of Ottawa

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING

DEGREES OFFERED: M.A., Geography; M.A., Geography (Regional Planning); Ph.D., Geography

GRANTED July 1, 1976–June 30, 1977: 7 M.A.

GRADUATE STUDENTS IN RESIDENCE: 23 M.A. 6 Ph.D.

NOT IN RESIDENCE: 19 M.A. 7 Ph.D.

CHAIRMAN: Denis A. St-Onge

FOR CATALOG AND FURTHER INFORMATION WRITE TO: The Secretary, Department of Geography and Regional Planning, University of Ottawa, Ottawa, Ontario, Canada K1N 6N5
Telephone (613) 231-2395 or 2396

PROGRAMS AND RESEARCH FACILITIES: The Department offers programs in Geography (M.A. and Ph.D.) and Regional Planning (M.A.).

The Geography program emphasizes 1) economic, urban, rural and social geography; 2) geomorphology, biogeography and resource management; 3) computer cartography and remote sensing; and 4) quantitative methods. Principal applications are in Canada, South America and South Asia.

The Regional Planning program is specialized in 1) the physical-spatial framework: ecological conditioning and physiographic conditioning; 2) the geo-economic framework: location theory and space allocation; 3) the social framework: perceptual and behavioral conditioning and social communications; and 4) the political framework: jurisdictional structures and legal instrumentation.

In the M.A., Geography, two semesters of seminars and supervised readings are followed by an examination of the thesis proposal and thesis. The M.A., Geography (Regional Planning) with or without thesis is of two years duration and includes a compulsory core curriculum plus optional work in the chosen sector of specialization. The Ph.D. program is composed of two major research papers

prepared under supervision, a comprehensive examination, dissertation proposal, and dissertation. Formal courses may be substituted for one of the research papers.

Students have access to one of the best-equipped university computer centers in Canada, including facilities for computer cartography, as well as a large map and air photo library. Ottawa furthermore offers numerous specialized federal government libraries and the facilities of embassies and consulates.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Located in North America's only major bilingual University (English and French), the Department offers courses and supervision in both English and French. The bi-cultural character of the Department provides the benefit of exposure to both the English-North American and French schools of thought. While unilingual candidates are admitted to the program in Geography, only students competent in both languages are admissible to the Regional Planning M.A. program.

Applicants to the M.A. program in Geography must hold a B.A. Honours in Geography or equivalent. For admission to the M.A. program in Regional Planning, the B.A. Honours in a number of related disciplines is accepted. An M.A. in Geography or equivalent is required for admission to the Ph.D. program. M.A. and Ph.D. students in the Geography program are admitted only if their research interests correspond to the specialization of available faculty.

Applications for admission to the M.A. and for financial aid must be submitted by March 1. Ph.D. applications are received throughout the year.

The Department offers a number of research assistantships. In some cases students can also be financed from faculty research grants. Good liaison with federal, provincial and municipal organisms frequently produces short term employment.

STAFF:

**Vincent Berdoulay, Ph.D., UC, Berkeley, Assistant Professor*—social, behavioral, history of geographic thought

Jean-Claude Bousquet, M.A., Paris, M.Sc., Northwestern, Assistant Professor—economic, urban, quantitative methods

David Douglas, M.A., Carleton, Lecturer—cartography, computer mapping

**Hugh French, Ph.D., Southampton, Associate Professor*—permafrost geomorphology, Arctic Canada

**Hugues Gagnon, D. d'Université, Paris I, Associate Professor*—remote sensing, soil stability, land use planning, Eastern Ontario, Western Quebec

**Peter Harrison, Ph.D., Washington, Assistant Professor*—resource management, coastal management, regional planning and analysis, public economy

**Peter Johnson, Ph.D., Leeds, Associate Professor*—geomorphology, Yukon Territory

Thaddeus Jost, Ph.D., Montreal, Professor—physical, Central and Eastern Europe, historical

**Edmond Kayser, D. 3e cycle, Strasbourg, Assistant Professor*—transportation and communications, Western Europe

**Marianne Kugler-Gagnon, Ph.D., Ottawa, Assistant Professor*—geomorphology, earth science and planning, remote sensing

Daniel Lagarec, M.A., Laval—geomorphology
•*Michel Phipps, D. ès Sc., Toulouse, Associate Professor*—ecology, analysis and planning of biotic resources
•*Léon Ploegaerts, Ph.D., Montreal, Associate Professor*—city planning, regional planning
•*Georges Potvin, M.A., Laval, Professor*—regional planning, urban, social
•*Paolo Ricci, Ph.D., Drexel, Assistant Professor*—environmental planning, quantitative methods, water resources, planning and development
•*Roger Roberge, Ph.D., Clark, Associate Professor*—industrial location, geography of invention and innovation
•*Denis St-Onge, D. ès Sc., Louvain, Professor and Chairman*—applied geomorphology, earth science and planning
•*Harishankar Srivastava, Ph.D., Florida, Professor*—political, South Asia
•*Guy Steed, Ph.D., Washington, Associate Professor*—economic, manufacturing, regional development
•*Rolf Wesche, Ph.D., Florida, Associate Professor*—rural, economic development, South America
•*John Ross Wright, Ph.D., Waterloo, Professor*—recreation resource planning
•Members of School of Graduate Studies

Queen's University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 8 Masters

GRADUATE STUDENTS IN RESIDENCE:	**21 Masters**	**11 Ph.D.**
NOT IN RESIDENCE:	**12 Masters**	**2 Ph.D.**

HEAD: Maurice Yeates

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. Peter Goheen, Chairman, Graduate Committee, Department of Geography, Queen's University, Kingston, Ontario, Canada K7L 3N6
Telephone (613) 547-2796

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography offers programs of study leading to the M.A., M.Sc., and Ph.D. degrees. The areas of interest in which graduate work is undertaken are:

1. Locational Analysis: concentrating on
   a) *Intra-urban geography:* particularly the social, economic and demographic structure of cities.
   b) *Regional structure, development and policy:* involving empirical and theoretical enquiries into regional structure.

c) *Diffusion and spatial interaction:* including innovation diffusion as well as the analysis of the movement of people, goods, and ideas.

2. Geomorphic and Pedologic Processes: with emphasis on contemporary land forming processes, watershed analysis, pedology and soil microscopy.
3. Cartography: concentrating on perception and map design, the planning of national mapping programs, and historical cartography.
4. Historical Geography: with particular emphasis on the exploration, settlement, and urban historical geography of Canada and North America.
5. Climatology: with emphasis on micro-climatology.

The Ph.D. degree is offered in the fields of Locational Analysis, Historical Geography, and Geomorphic and Pedological Processes.

Excellent research facilities include the university's IBM 360-50 computer, the departmental digital mini-computing system PDP-11/V03, a Calcomp plotter and other graphic devices; a growing library of programs including Symap and a large calculator laboratory. Cartography laboratories include a Saltzman projector and a type-setting machine and a photogrammetry and photo interpretation laboratory. The Geomorphology and Climatology laboratories are well instrumented: soils equipment includes a magnetic separator, atomic absorption spectrophotometer, a differential thermal analyser, together with the equipment for a conventional wet chemical laboratory. Field reconnaissance and research facilities include a field vehicle, mobile field laboratory, and instrumentation equipment such as deep-drill, neutron probe, stream gauges, and many other items.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The Master's student entering the program with an Honours Bachelor's degree or equivalent is required to be in residence for a minimum period of one academic session of two semesters. For holders of the General Bachelor's degree or equivalent, two academic sessions in residence are required. The Master's program consists of either:

(a) four semester courses and a thesis weighted as one half of the total program, or
(b) six semester courses plus a thesis weighted as one quarter of the total program.

Admission to the Ph.D. program requires a Master's degree or its equivalent. Doctoral students are required to complete six semester courses, to take a comprehensive examination, and to complete a dissertation.

Teaching assistantships in undergraduate geography courses are awarded for the eight-month academic year (two semesters) on a competitive basis. Geography graduate students are eligible to compete for university fellowships. In 1976-77, the average level of support for full-time graduate students, from all sources, was $4200.

STAFF:

J. B. Cannon, Ph.D., Washington, 1969, Assistant Professor—economic, regional development, Canada

H. W. Castner, Ph.D., Wisconsin, 1964, Associate Professor—cartography, map design, thematic mapping, historical cartography of Russia

R. Gilbert, Ph.D., British Columbia, 1974, Assistant Professor—geomorphology

P. G. Goheen, Ph.D., Chicago, 1970, Associate Professor—urban, historical

J. Holmes, Ph.D., Ohio State, 1974, Assistant Professor—urban social, quantitative methods, behavioral

J. H. McCaughey, Ph.D., McMaster, 1972, Assistant Professor—microclimatology

G. McGrath, M.A., Cambridge, 1960, Associate Professor—cartography, air photogrammetry and interpretation, surveying, Africa

E. G. Moore, Ph.D., Queensland, 1966, Professor—urban, behavioral, residential location theory

G. Mulligan, Ph.D., British Columbia, 1976, Visiting Assistant Professor—urban, economic

E. D. Ongley, Ph.D., Sydney, 1971, Associate Professor—geomorphology, network and slope studies, karst, semi-arid and arid landforms

B. S. Osborne, Ph.D., Southampton, 1967, Professor—human, historical, cultural

J. B. Riddell, Ph.D., Pennsylvania State, 1969, Associate Professor—transportation, Africa, migration

R. I. Ruggles, Ph.D., London, 1958, Professor—historical, historical cartography, U.S.S.R.

G. K. Rutherford, Ph.D., Vollebekk, Norway, 1959, Professor—soils, agricultural, land systems analysis, tropical areas

A. N. Spector, Ph.D. pending, Ohio State, 1977, Lecturer—behavioral, quantitative, urban

A. M. Taylor, D.Phil., Oxford, 1955, Professor—political, technology and environment, historical

R. R. Tinline, Ph.D., Bristol, 1973, Associate Professor—social, spatial diffusion, epidemiology

W. J. Vreeken, Ph.D., Iowa State, 1972, Assistant Professor—soils, water resources

M. H. Yeates, Ph.D., Northwestern, 1963, Professor and Head—urban, economic, regional analysis

University of Regina

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc.

GRANTED July 1, 1976–June 30, 1977: 2

GRADUATE STUDENTS IN RESIDENCE: 7

NOT IN RESIDENCE: 2

HEAD: Edmund H. Dale

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. E. H. Dale, Head, Department of Geography, University of Regina, Regina, Saskatchewan, Canada S4S 0A2
Telephone (306) 584-4223

PROGRAMS AND RESEARCH FACILITIES: The M.A. and M.Sc. programmes include lectures, seminars, intensive field work and dissertation. The originality of the dissertation is a prerequisite for the degree. Though the programmes are individualized, students are encouraged to do interdisciplinary work. The systematic fields emphasized are urban, rural, and quality and use of resources. Adequate facilities for cartography, air photo interpretation, computer analysis, and graphics are available.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: For details write to the Head.

STAFF:

Cesar N. Caviedes, Ph.D., Freiburg, Associate Professor—water resources, glacial geomorphology, climatology, Latin America

Edmund H. Dale, Ph.D., Alberta, Professor and Head—political, political-urban, Commonwealth Caribbean

G. Victor Dojcsak, Ph.D., Budapest, Associate Professor—paleogeomorphology, Western Canadian plains

Alexander H. Paul, Ph.D., Alberta, Associate Professor—climatology, recreation, water resources, Western Canada

Abul H. Sahir, Ph.D., Minnesota, Assistant Professor—cultural, geographic thought, rural

Hans G. Schlichtmann, Ph.D., Tübingen, Associate Professor—thematic cartography, cultural, Western Europe

One position to be filled.

University of Saskatchewan

GEOGRAPHY DEPARTMENT

DEGREES OFFERED: M.A., M.Sc., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 1 M.A., 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**14 Masters**	**4 Ph.D.**
NOT IN RESIDENCE:	**4 Masters**	**2 Ph.D.**

HEAD: J. Howard Richards

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. J. Howard Richards, Head, Geography Department, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0
Telephone (306) 343-4302

PROGRAMS AND RESEARCH FACILITIES: Training up to and including the Ph.D. level is provided both within the Department of Geography and, as necessary, in association with other Departments. Graduate College admission requires the equivalent of the University of Saskatchewan degree of B.A. or B.Sc. (Honors) with minimum of a second class, or B, standing. Students with less than these pre-

requisites may be admitted on a probationary basis with departmental permission.

Saskatchewan and the surrounding region provide unusual opportunities for research in physical geography. Further, within the province and the prairies the short history of settlement, the relatively complete archival record and speed of socio-economic change give good opportunity for a variety of research in rural and urban land use and historical geography. Research is encouraged in certain regional specializations as well as in grassland, subarctic, and arctic work. Facilities for advanced work in cartography include a well-equipped photomechanical laboratory. Excellent computer facilities are available (IBM System/370 158).

Financial Aid: Financial support is available during the academic year and summer period in the form of Teaching Fellowships, Graduate Scholarships, Teaching Assistantships, and Institute for Northern Studies Scholarships. Part-time employment is often available in various areas of applied geography such as land use inventory and planning.

STAFF:

S. S. Ahmad, M.A., Clark, 1965, Lecturer—economic, underdeveloped lands

O. W. Archibold, Ph.D., Simon Fraser, 1975, Assistant Professor—biogeography

W. Barr, M.Sc., McGill, 1965, Associate Professor—Pleistocene geomorphology

J. L. Bergsteinsson, B.A., B.Ed., 1967, Saskatchewan, Research Associate—applied climatology (Saskatchewan Research Council, Physics Division)

R. M. Bone, Ph.D., Nebraska, 1962, Professor and Director, Institute for Northern Studies—Soviet Union, polar lands

A. K. Chakravarti, Ph.D., Wisconsin, 1967, Professor—climatology, agricultural, South Asia

J. E. FitzGibbon, Ph.D., McGill, 1977, Assistant Professor—physical, geomorphology, hydrology

K. I. Fung, M.Sc., Alberta, 1965, Associate Professor—cartography, air-photo interpretation, China and Japan

W. O. Kupsch, Ph.D., Michigan, 1950, Professor (Geological Sciences)—glacial geology

H. D. Linn, M.Sc., British Columbia, 1966, Visiting Assistant Professor—urban and regional planning

J. G. McConnell, M.A., Toronto, 1965, Associate Professor—historical, cultural, North America, Arctic

R. Rees, M.A., Toronto, 1960, Associate Professor—urban, Europe

J. H. Richards, Ph.D., Toronto, 1954, Professor—land use and regional development, recreation

R. O. St. Arnaud, Ph.D., Michigan State, 1961, Special Lecturer (Professor, Soil Science)—soils

C. J. Tracie, Ph.D., Alberta, 1970, Associate Professor—settlement, historical

M.R.Wilson, Ph.D., Oregon, 1973, Assistant Professor—biogeography, tropical, population, Latin America

University of Sherbrooke

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.Sc.

GRANTED July 1, 1976–June 30, 1977: 9

GRADUATE STUDENTS IN RESIDENCE: 13

NOT IN RESIDENCE: 34

CHAIRMAN: J. M. Dubois

FOR CATALOG AND FURTHER INFORMATION WRITE TO: J. M Dubois, Chairman, Department of Geography, University of Sherbrooke, Sherbrooke, Quebec, Canada J1K 2R1

PROGRAMS AND RESEARCH FACILITIES: Specialization in Spatial Organization in Regional Planning, Physical Geography and Social Geography through fields such as Regional Planning, Transportation, Tourism, Land Use, Geomorphology, Biogeography, Remote Sensing, Urban and Behavioral Geography and Cartography. The Department has a physical geography laboratory with an outdoor research station within the limits of the campus. The cartography laboratory is well-equipped including an EAI Pacer 100 Computer with tracing table and a Bendix digitizer system. In addition the University possesses an IBM 360–65. The Department works in close association with the University Regional Planning Research Centre.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Admission Requirements:* An Honor Degree (Canada) or equivalent degree (U.S.A.). A speaking knowledge of the French language.
Academic Plan: Year divided into semesters from September to May.
Financial Aid: A number of assistantships available.

STAFF:

Jean-Jacques Boisvert, D.d'U., Grenoble, 1954, Associate Professor—climatology
Ferdinand Bonn, Ph.D. (geography), Strasbourg, 1975, Assistant Professor—geomorphology, biogeography, remote sensing
Roch Choquette, licence d'enseignement secondaire, M.A. (geography), Sherbrooke, 1970, Assistant Professor—teaching of geography
Pierre Clément, agrégé de géographie, Aix, 1962, Associate Professor—geomorphology, geopedology, map interpretation
Jean-Marie Dubois, M.A. (geography), Sherbrooke, 1970, Assistant Professor—air photography, Quaternary geomorphology
Robert Gagnon, Ph.D. (geography), Aix, 1971, Associate Professor—economic, agricultural, quantitative

Roger Nadeau, Ph.D. (geography), Aix, 1975, Assistant Professor—urban

Romain Paquette, Ph.D., McGill, 1968, Associate Professor—behavioral, geography of underdeveloped countries, geography of the Caribbean area

André Poulin, M.A. (geography), Montreal, 1969, Assistant Professor—geomorphology, land use

Marcel Pouliot, M.A. (geography), Laval, 1970, Assistant Professor—transportation

Michel Rheault, M.A. (geography), Ottawa, 1973, Assistant Professor—cartography

Jean-Marie Roy, D. d'U., Grenoble, 1951, Professor—history of geographical thought

Oleg Stanek, Ph.D. (architecture), Brno, Czechoslovakia, 1952, M.A. (economics), Prague, 1949, Associate Professor—planning, economics, geography of socialist countries

Jean-Pierre Thouez, Ph.D. (geography), Grenoble, 1969, Associate Professor—urban functions, quantitative

Simon Fraser University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 2 M.A., 4 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**8 M.A.**	**8 Ph.D.**
NOT IN RESIDENCE:	**0 M.A.**	**4 Ph.D.**

CHAIRMAN: M. C. Roberts

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Secretary, Graduate Studies Committee, Department of Geography, Simon Fraser University, Burnaby, B.C., Canada V5A 1S6
Telephone (604) 291-3322

PROGRAMS AND RESEARCH FACILITIES: Students may specialize in the three basic branches of geography: cultural, economic, and physical, though considerable intersub-disciplinary work is also pursued. The department takes a special interest in developing theoretical and conceptual frameworks in the systematic fields of geography. Current research, in addition to work in the immediate area, is being undertaken in British Honduras, the United Kingdom, the U.S., and in the Canadian North.

Facilities for advanced work include well-equipped cartography, geomorphology, biogeography, and climatology laboratories. In addition the University possesses an IBM 370/155 computer, with Calcomp and Tectronics plotters.

Thesis work is currently being undertaken in the following areas: Plant Geography, Urban Social Geography, Resource Analysis, Meandering Rivers, Computer Cartography, etc.

M.A. Program consists of either 30 trimester credits of course work, or 20 credits and a thesis (10 credits). Students must give evidence of their research

ability by the satisfactory completion *either* of a thesis (counting for 10 credits) *or* of two extended essays based on assignments carried out as part of the work in graduate courses.

Ph.D. Program consists of a basically unstructured program, successful passing of a set of qualifying examinations and the completion of a dissertation.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Trimester System.* Entrance to degree program possible on January 1st, May 1st or September 1st each year. Last dates for application to the Trimester selected are: September 30, January 31, and March 15 respectively.

M.A. Program. To gain admission student applicants must present evidence that they are adequately prepared in terms of the extent of their undergraduate training and the level of their scholarly ability. Normally, admission is granted to students who have achieved at least a "good" second class standing in their undergraduate work ("B", "B+", "A"). Students from United Kingdom universities, generally, will be accepted only if they have achieved a "first" or "upper second". In exceptional cases students may be admitted who are able to present alternative evidence of their academic ability.

Ph.D. Program. Admission is only granted when the department has evidence that a candidate is able both to complete formal course work at the most advanced level and to produce a satisfactory dissertation.

Other requirements. In both cases the student is expected to show or acquire competence in statistical techniques, problems and principles of geographic methodology, and, in addition, a student may be directed to acquire an adequate knowledge of a language other than English which would be relevant to his/her studies.

Financial Aid. The department can normally offer a total of four one-semester, part-time teaching assistantships to M.A. candidates and eight assistantships to doctoral candidates, at the current salary of $2185 and $2660 per semester respectively (that is, $4370 per two semesters for M.A.'s and $5320 per two semesters for Ph.D. candidates). Continuation of assistantships beyond one semester depends upon satisfactory teaching performance. In addition, once during a program of study, a stipend of $1200 is usually available after two semesters of graduate work. Other forms of support may be available from time to time on specific departmental research projects.

STAFF:

M. L. Barker, Ph.D., Toronto, Assistant Professor—resource studies, behavioral geography, Western Canada

R. C. Brown, Ph.D., Michigan State, Associate Professor—agricultural, resource development

C. B. Crampton, Ph.D., Bristol, Associate Professor—pedology and terrain analysis

F. F. Cunningham, Dip. Ed., Durham, F.R.G.S., Professor—geomorphology, Latin America, relations between landscape science and landscape art

M. E. Eliot Hurst, Ph.D., Durham, Associate Professor—economic behavior, socialist geography, imperialism

L. J. Evenden, Ph.D., Edinburgh, Associate Professor—urban and social geography

E. M. Gibson, Ph.D., British Columbia, Associate Professor—urban cultural geography, methodology

R. Hayter, Ph.D., Washington, Assistant Professor—economic, manufacturing, locational analysis

E. J. Hickin, Ph.D., Sydney, Associate Professor—geomorphology

R. B. Horsfall, Ph.D., Johns Hopkins, Assistant Professor—cultural, environmental psychology, medical geography

I. Hutchinson, Ph.D., Simon Fraser, Assistant Professor—biogeography

P. M. Koroscil, Ph.D., Michigan, Assistant Professor—cultural, historical, Canada

A. MacPherson, M.A., Edinburgh, Professor—urban climatology, Western Europe, cultural

T. K. Peucker, D.Phil., Heidelberg, Associate Professor (Geography/Computing Science)—economic, quantitative, computer cartography

J. T. Pierce, Ph.D., London School of Economics, Assistant Professor—urban economic, rural resource management

G. A. Rheumer, Ph.D., Illinois, Associate Professor—historical, British Columbia

M. C. Roberts, Ph.D., Iowa, Associate Professor—fluvial geomorphology, field methods, urban hydrology

R. B. Sagar, M.Sc., McGill, Associate Professor—climatology, glaciology

P.L. Wagner, Ph.D., UC, Berkeley, Professor—cultural

J. W. Wilson, M.Sc., M.R.P., North Carolina, Professor—urban and regional planning

S. T. Wong, Ph.D., Chicago, Associate Professor—resources management, population studies, quantitative methods

University of Toronto

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc., Phil.M., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 13 Masters, 5 Ph.D.

GRADUATE STUDENTS IN RESIDENCE:	**29 Masters**	**23 Ph.D.**
NOT IN RESIDENCE:	**12 Masters**	**9 Ph.D.**

CHAIRMAN: Jacob Spelt

FOR CATALOG AND FURTHER INFORMATION WRITE TO: The Chairman, Department of Geography, University of Toronto, Toronto, Ontario, Canada M5S 1A1 Telephone (416) 978–3377

PROGRAMS AND RESEARCH FACILITIES: The M.A. and M. Sc. programs normally take a year, and comprise either a thesis and at least one graduate course, or a research paper and at least three graduate courses (or six half courses). The Ph.D. is essentially a research degree requiring the preparation of a doctoral thesis

which meets the standard of a publishable research monograph. This program requires at least two years in residence after the M.A. The course, examination, and language requirements for the Phil.M. are those for the Ph.D. degree. In the Phil.M. a research paper is written instead of a doctoral thesis and the residence requirement is one year.

The department is prepared to supervise graduate research in climatology, geomorphology, pedology and land management, resource management and environmental hazards, cultural and social geography, historical geography, philosophy and history of geography, industrial geography, regional development, transportation analysis, quantitative analysis, and urban geography. The department conducts and provides for research on Canada, the United States and other areas where members of staff have active research interests, particularly Latin America, the U.S.S.R., Western and Central Europe, Africa, and China.

The University library, with some three and a half million volumes, and special libraries near the campus comprise the largest collection of books and documents in Canada. Computing facilities available on campus include two IBM 360/65's, a 7094, a network of 360/20 terminals and 2741 CPS terminals, and graphic input and output devices.

Departmental facilities include cartographic laboratories, laboratories and a field station for climatology and geomorphology, computer programming assistance and research rooms for graduate students.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan*—Year system, with entrance in September.

Admission Requirements—Minimum requirement is a bachelor's degree from a recognized university within the last five years with at least upper second class standing or its equivalent. Exceptions permitted in unusual circumstances.

Financial Aid—Teaching and Research Assistantships carrying stipends of $2800 to $3000 are available and involve not more than ten hours work per week. Fellowships (University of Toronto, Canada Council, Central Mortgage and Housing Corporation, National Research Council, Transportation Development Agency, etc.) $3000 to $6500 requiring no services. Summer employment in department often available.

GRADUATE FACULTY:

Howard F. Andrews, D. Phil., Sussex, 1970, Associate Professor—social geography and methodology

Alan M. Baker, M.A., Alberta, 1962, Associate Professor—urban, spatial analysis

Larry S. Bourne, Ph.D., Chicago, 1966, Professor and Director, Centre for Urban and Community Studies—urban, regional analysis

John N. H. Britton, Ph.D., London, 1966, Professor—industrial, spatial interaction, regional economic analysis

Rorke Bryan, Ph.D., Sheffield, 1967, Professor—slope processes, soil erosion, wildlife and parks conservation

Michael Bunce, Ph.D., Sheffield, 1970, Associate Professor—agriculture, rural land use

Ian Burton, Ph.D., Chicago, 1962, Professor—environmental hazards, perception and decision-making in resource management

Peter W. Cave, D. Phil., Oxford, 1968, Associate Professor—urban

Leslie Curry, Ph.D., New Zealand, 1959, Professor—climatology, analytic and statistical models in geography

William G. Dean, Ph.D., McGill, 1959, Professor—pleistocene geomorphology, Ontario geography, cartography, the North

Neil C. Field, Ph.D., Washington, 1956, Professor—U.S.S.R., economic geography (industrial and agricultural)

J. H. Galloway, Ph.D., London, 1965, Professor and Associate Chairman—Latin America, historical

Brian Greenwood, Ph.D., Bristol, 1970, Associate Professor—geomorphology, sedimentology, coastal studies

F. Kenneth Hare, Ph.D., Montreal, 1950, Professor and Director, Institute of Environmental Studies—dynamic and physical climatology, ecology

Alan V. Jopling, Ph.D., Harvard, 1961, Professor—geomorphology, sedimentology, hydrology

Donald Kerr, Ph.D., Toronto, 1950, Professor—industrial, metropolitan growth

James T. Lemon, Ph.D., Wisconsin, 1964, Professor and Director of Community Living Programme—historical, urban, social

Joseph A. May, Ph.D., Toronto, 1968, Associate Professor—philosophy of geography, history of geography

Allen J. Scott, Ph.D., Northwestern, 1965, Professor, cross-appointed to Urban and Regional Planning—theoretical geography, planning

James W. Simmons, Ph.D., Chicago, 1964, Professor and Graduate Secretary—urban

Christopher J. Sparrow, Ph.D., Auckland, 1970, Associate Professor—climatology, air pollution

Jacob Spelt, Ph.D., Utrecht, 1955, Professor and Chairman—urban, historical

J. J. van der Eyk, Ph.D., Wageningen, 1957, Professor—pedology, land management, airphoto interpretation, photogrammetry

Rodney R. White, Ph.D., Bristol, Associate Professor—transport geography, regional design, Africa

Joseph B. R. Whitney, Ph.D., Chicago, 1969, Professor—resources, East Asia, political

Anne V. T. Whyte, Ph.D., Johns Hopkins, 1972, Associate Professor—environmental perception and behavior

University of Victoria

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 10 M.A.

GRADUATE STUDENTS IN RESIDENCE:	**19 M.A.**	**2 Ph.D.**
NOT IN RESIDENCE:	**7 M.A.**	**1 Ph.D.**

CHAIRMAN: Charles N. Forward

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Mr. L. T. Ghobrial, Faculty of Graduate Studies, University of Victoria, Victoria, B.C., Canada V8W 2Y2
Telephone (604) 477–6911, ext. 404, 407

PROGRAMS AND RESEARCH FACILITIES: The Geography Department of the University of Victoria has concentrated its major efforts on three fields. East and Southeast Asia provide a regional focus within the department. Urban-economic and resource geography are the other fields of emphasis. Within the regional focus the area's geomorphological evolution, resource use and cultural geography are emphasized. The urban-economic program stresses the importance of land use policies, transportation, urban behavioural geography and the application of quantitative techniques. Within the resources program, decision-making in resources management, and various aspects of atmospheric, biospheric, hydrospheric and recreational resources form the major specializations. Other systematic studies generally are related to the three major fields of specialization in the Department.

The facilities of both the departmental map library and university library have been developed to support this concentration of effort.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: A baccalaureate degree from a recognized university, or its equivalent, with a "B" average (70%) for the last two years is generally considered the minimum required for admission. Students whose native language is not English are required to provide evidence that their knowledge of English is sufficient to allow them to proceed with their studies. Overseas students should not make provision to travel to Canada until they have actually been admitted and have evidence of financial resources to allow them to pursue their studies here. The minimum requirement for a Master's degree is the equivalent of one full winter session of study (15 units), but most students should expect to spend two academic years in residence. For the degree of Doctor of Philosophy at least the equivalent of two full winter sessions of study beyond the Master's level or three full winter sessions of study beyond the Bachelor's level, and satisfactory completion of the prescribed program are required. All graduates are expected to attend at least one field trip. Thesis topics are agreed upon after consultation with a supervisory committee and normally reflect the course work taken by the graduate concerned. The Winter Session is divided into two terms—the first, September to December; the second, January to May.

University of Victoria Fellowships of $3600, applicable to the session September to April, are awarded by the Faculty of Graduate Studies to students of high academic standing registered full-time in the Faculty. Upon recommendation of the Department, these Fellowships will be accompanied by a Summer Supplement of $1200, applicable to the period May to August, inclusive, for students working full-time on their studies during that period. Part-time Laboratory Instructorships, ranging from $1000 to $3000, applicable to the session September to April, are awarded by the Department. These instructors are assigned two to four contact hours per week, together with preparation and marking, during the

period September to April. National Research Council Graduate Scholarships and Bursaries and Central Mortgage and Housing Corporation Fellowships may be awarded subject to conditions laid down by these agencies. Information regarding Canada Council and other Graduate Awards may be obtained from the Faculty of Graduate Studies.

STAFF:

Michael C. R. Edgell, Ph.D., Birmingham, 1967, Associate Professor—biogeography, landscape evaluation, Australia

Charles N. Forward, Ph.D., Clark, 1958, Professor and Chairman—urban, historical, port geography, Canada

Harold D. Foster, Ph.D., London, 1968, Associate Professor—pleistocene chronology and process, hydrology

Charles H. Howatson, M.A., British Columbia, 1947, Associate Professor—geology, land use, Western Canada, air photo interpretation

David C. Y. Lai, Ph.D., London, 1967, Associate Professor—industrial, Asia with particular reference to China, urban

Malcolm A. Micklewright, Ph.D., Washington, 1970, Associate Professor—economic, cartography, Canada

Peter E. Murphy, Ph.D., Ohio State, 1970, Associate Professor—urban, economic, quantitative, planning

Robert E. Pfister, Ph.D., Oregon State, 1976, Assistant Professor—recreational and water resources, economic, Latin America

J. Douglas Porteous, Ph.D., Hull, 1969, Associate Professor—urban, behavioural, Latin America

William M. Ross, Ph.D., Washington, 1972, Assistant Professor—resource management, international resources problems, marine resources, Canada

W. R. Derrick Sewell, Ph.D., Washington, 1964, Professor—decision-making in resources management, with particular reference to water and atmospheric resources, Anglo-America, Western Europe

Stanton E. Tuller, Ph.D., UCLA, 1971, Associate Professor—climatology, physical, Japan

Rudolph Wikkramatileke, Ph.D., London, 1955, Professor—tropical land use with special reference to state-sponsored colonization, problems of agricultural development and rural settlements, South and Southeast Asia

Colin J. B. Wood, Ph.D., McMaster, 1970, Assistant Professor—economic, urban, resources, conflict resolution, economic, quantitative

University of Waterloo

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 13 M.A., 3 Ph.D.

GRADUATE STUDENTS IN RESIDENCE: 25 M.A. 9 Ph.D.

NOT IN RESIDENCE: 18 M.A. 4 Ph.D.

CHAIRMAN: Geoffrey R. McBoyle

FOR CATALOG AND FURTHER INFORMATION WRITE TO: David Walker, Graduate Officer, Department of Geography, Faculty of Environmental Studies, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1
Telephone (519) 885-1211, ext. 3404

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography is an integral part of the Faculty of Environmental Studies comprising the Department of Geography, School of Urban and Regional Planning, Department of Man-Environment Studies, and the School of Architecture. Although the graduate programs in Geography and in the School of Urban and Regional Planning are separate and independent, they strongly complement one another. Faculty in Geography and in Planning are readily accessible to all students and there is a constant dialogue between the Geography and Planning graduate students.

The Department offers training and research guidance at the Master's and Doctorate levels. The fields of research specialization are (1) resource analysis (social, economic, and ecological aspects), (2) economic (industrial, rural, regional development), (3) urban, (4) recreation, (5) physical, (6) techniques (air photo interpretation, remote sensing, computer mapping, model-building, statistical analysis). For Honors B.A. (or equivalent) graduates in Geography, there are two routes for the M.A.—(1) the Thesis M.A., and (2) the Course Work M.A. Requirements for the Course Work M.A. are four graduate courses and the completion of a research paper. Requirements for the Thesis M.A. are three graduate courses and a thesis. For the Ph.D. (after the M.A. degree) course requirements vary with the background and needs of the candidate. A dissertation is mandatory, and competence in a language other than English is expected.

Excellent cartographic, photo interpretation, and computer facilities are available.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: *Academic Plan*—Academic Year, September to April. *Admission Requirements*—M.A.—2nd class standing (70%) in graduating year of Honors B.A. or equivalent. Ph.D.—Must possess M.A. (or equivalent) and first class standing. *Financial Aid*—Department Assistantships with a maximum value of $3000 for academic year.

STAFF:

James H. Bater, Ph.D., London, 1969, Associate Professor—Soviet Union, industrial

Christopher R. Bryant, Ph.D., London, 1970, Associate Professor—rural, quantitative methods

Ronald A. Bullock, Ph.D., London, 1969, Associate Professor—cultural, historical, Africa

Trudi Bunting, Ph.D., Toronto, 1975, Assistant Professor—urban

J. Chadwick Day, Ph.D., Chicago, 1970, Associate Professor—natural resource management

Aubrey Diem, Ph.D., Michigan, 1961, Professor—regional, Europe

Douglas Dudycha, Ph.D. candidate, London, Lecturer—quantitative methods, computer cartography

David K. Erb, Ph.D., McGill, 1963, Professor—tropical geomorphology, air photo interpretation, resource inventory

James A. Gardner, Ph.D., McGill, 1968, Associate Professor—Alpine and arctic geomorphology, environmental hazards and impact studies, geographic education

Leonard Guelke, Ph.D., Toronto, 1974, Associate Professor—geographic thought, cartography, historical, Africa

B. Hyma, Ph.D., Pittsburgh, 1971, Associate Professor—population, developing countries

Robert M. Irving, Ph.D., Minnesota, 1966, Professor—rural, Canada

R. Johnson, Ph.D., Minnesota, 1972, Assistant Professor—recreation

Andrzej Kesik, Ph.D., Marie-Curie Sklodowska, 1959, Associate Professor—air photo interpretation, geomorphology, geomorphological surveying

Ralph R. Krueger, Ph.D., Indiana, 1959, Professor—land use, regional planning and development, Canada

Ellsworth LeDrew, Ph.D., Colorado, 1976, Assistant Professor—climatology, remote sensing, Canadian Eastern Arctic

B. Matthews, Ph.D., Cornell, Professor and University President—soils geography

Geoffrey R. McBoyle, Ph.D., Aberdeen, 1969, Associate Professor and Chairman—climatology, geographic thought and methodology

Alexander G. McLellan, Ph.D., Glasgow, 1967, Associate Professor—glacial geomorphology and field studies

Bruce Mitchell, Ph.D., Liverpool, 1969, Associate Professor—natural resources, quantitative methods

Peter H. Nash, Ph.D., Harvard, 1958, Professor—futures, ekistics

J. G. Nelson, Ph.D., Johns Hopkins, 1959, Professor and Dean—resources, landscape history

E. Roy Officer, M.A., Wisconsin, 1958, Assistant Professor—historical, political, geographic thought

Richard E. Preston, Ph.D., Clark, 1964, Professor—urban, regional development

Lorne H. Russwurm, Ph.D., Illinois, 1964, Professor and Associate Chairman—urban, ecosystems, quantitative methods

David F. Walker, Ph.D., Toronto, 1971, Associate Professor and Graduate Officer—industrial, location theory, regional development

Geoffrey Wall, Ph.D., Hull, 1971, Associate Professor—recreation, hazards

University of Western Ontario

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A., M.Sc., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 25 Masters, 1 Ph.D.

GRADUATE STUDENTS IN RESIDENCE	**35 Masters**	**10 Ph.D.**
NOT IN RESIDENCE:	**3 Masters**	**10 Ph.D.**

CHAIRMAN: C. F. J. Whebell

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Coordinator of Graduate Affairs, Department of Geography, University of Western Ontario, London, Ontario, Canada N6A 5C2

PROGRAMS AND RESEARCH FACILITIES: The Department is prepared to supervise research within the principal interests of its staff, but particularly in the research foci of urban and regional studies, social geography, resources management, physical geography, and quantitative theory and spatial systems. The University offers opportunities for course work and research in Western Hemisphere studies and the Department has close ties with the faculties of Anthropology, Botany, Business Administration, Economics, Engineering, Education, Geology, History, Political Science and Psychology.

The Master's thesis and the Ph.D. dissertation represent the end products toward which the individual's program is directed. Most students and many faculty members participate in the forum on Geographical Methodology. Additional course work, determined on an individual basis, and a field camp make up the course requirements for either the Master's or the Ph.D. degree.

Facilities in a new Social Science Centre include well-equipped laboratories in geomorphology and climatology, a cartographic division with three full-time cartographers and a map library of over 130,000 sheet-maps and 500 atlases, with three full-time curators. The Department's computer facilities include remote PDP-10 terminals, a digitizer, analog plotters and full-time programming consultants. Students also have access to the University's Cyber 73–14 (CDC 6400) system and on-line facilities to IBM 360/65, CDC 660 and Univac 1108. The Department maintains a geomorphology field station on Lake Erie. Study space is provided for each graduate student. Students and faculty publish the semi-annual geographical journal *Ontario Geography*. Each year several noted geographers from other universities and agencies are invited to give visiting lectures and seminars in the Department.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: Semester system. Master's applicants must have either an Honors Bachelor's degree or equivalent in Geography with at least a B average from a recognized university, or have a degree in another program with at least a B average and have completed coursework to the satisfaction of the Department. Ph.D. applicants who hold

a Master's degree or equivalent are accepted at the discretion of the Department. Financial aid is available to qualified students through University Scholarships, teaching assistantships, and scholarships from outside agencies. Write to the Coordinator of Graduate Affairs for details.

STAFF:

E. M. Bjorklund, Ph.D., Chicago, Associate Professor—cultural
R. W. Butler, B.A., Nottingham, Associate Professor—recreational
D. G. Cartwright, Ph.D., Western Ontario, Assistant Professor—Canadian studies
R. G. Cecil, Ph.D., McGill, Assistant Professor—economic (Caribbean)
W. R. Code, Ph.D., UC, Berkeley, Associate Professor—urban
M. F. Goodchild, Ph.D., McMaster, Associate Professor—quantitative geography
H. A. Hossé, Ph.D., Ottawa, Professor—urban and regional planning
D. G. Janelle, Ph.D., Michigan State, Associate Professor—spatial forecasting, urban conflict, transportation
R. H. King, Ph.D., Saskatchewan, Associate Professor—geomorphology, soils, climatology
O. Langtvet, C. Phil., Oslo, Associate Professor—regional analysis (Western Europe)
B. H. Luckman, Ph.D., McMaster, Assistant Professor—geomorphology
R. McDaniel, M.A., Western Ontario, Associate Professor—geography of the future
N. L. Nicholson, Ph.D., Ottawa, Senior Professor—Canada
R. W. Packer, M.A., Cantab., Professor—geomorphology
A. K. Philbrick, Ph.D., Chicago, Professor—cultural
E. G. Pleva, Ph.D., Minnesota, Professor Emeritus—resources planning, Great Lakes Area
H. W. Taylor, Ph.D., Maryland, Associate Professor—Latin America
M. J. Troughton, Ph.D., Western Ontario, Associate Professor—agricultural
W. Warntz, Ph.D., Pennsylvania, Professor—theoretical geography, macro-geographic systems and environmental quality, history and philosophy of science
C. F. J. Whebell, Ph.D., London, Associate Professor and Chairman—political
W. R. Wightman, Ph.D., Dunelm, Associate Professor—historical

Wilfrid Laurier University

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED July 1, 1976–June 30, 1977: 10

GRADUATE STUDENTS IN RESIDENCE: 24

CHAIRMAN: Alfred Hecht

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Dr. B. N. Boots, Graduate Officer, Department of Geography, Wilfrid Laurier University, Waterloo, Ontario, Canada N2L 3C5

PROGRAMS AND RESEARCH FACILITIES: The Department of Geography offers courses and research guidance at the Master's level in the fields of: (1) applied physical geography, (2) cultural and historical geography, (3) economic and urban geography, and (4) resources management.

There are two options from which a graduate student may choose. The thesis option normally involves completion of a minimum of four term courses and a thesis. Participation in graduate colloquia and a Seminar in Recurring Conceptual Issues in Geography are normally required.

The non-thesis option allows completion of the M.A. program through course work. Nine term or equivalent graduate courses are required, one of which must be Recurring Conceptual Issues in Geography. As well the student is restricted to a maximum of four term courses in any one of the general areas of geography offered by this department. Cartographic and computer facilities are available.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID:
Academic Plan—Academic Year, September to April.
Admission Requirements—A minimum of second class honours or B standing in the graduating year of an Honours Program in Geography or its equivalent.
Financial Aid—Department Teaching Fellowships with a value of $3000 per academic year. Additional Teaching Fellowships valued at $1500 are available in the summer months.

STAFF:
Barry N. Boots, Ph.D., Rutgers, Associate Professor—location analysis, urban, quantitative
Jerry A. Hall, Ph.D., Clark, Associate Professor—physical, climatology
C. Grant Head, Ph.D., Wisconsin, Associate Professor—historical cultural, cartography
Alfred Hecht, Ph.D., Clark, Associate Professor—economic, urban
Kenneth Hewitt, Ph.D., London, Professor—natural hazards, mountain environments, ecological theory
Ian A. McKay, M.A., Western Ontario, Assistant Professor—cultural, historical
John H. McMurry, Ph.D., Michigan, Professor—resources, land and wildlife management
Russell W. Muncaster, Ph.D., Clark, Associate Professor—urban, quantitative, economic
Helen Parson, Ph.D., Kentucky, Assistant Professor—resources, rural
Houston C. Saunderson, Ph.D., Toronto, Associate Professor—geomorphology, sedimentation
Gunars Subins, Ph.D., Western Ontario, Associate Professor—physical, geomorphology
Herbert A. Whitney, Ph.D., Michigan, Associate Professor—geographic thought and method, cultural, historical
Bruce S. Young, Ph.D., Durban, Professor—economic, urban, developing world

University of Windsor

DEPARTMENT OF GEOGRAPHY

DEGREES OFFERED: M.A.

GRANTED July 1, 1976–June 30, 1977: 8

GRADUATE STUDENTS IN RESIDENCE: 18

NOT IN RESIDENCE: 11

CHAIRMAN: Frank C. Innes

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Graduate Secretary, Department of Geography, University of Windsor, Windsor, Ontario, Canada N9B 3P4
Telephone 1(519) 253-4232, ext. 446

PROGRAMS AND RESEARCH FACILITIES: Instruction and research guidance are offered by the Department in the fields of Climatology and Geomorphology; Historical Geography; Regional Studies, particularly of Latin America, Arctic Canada, the Soviet Union, and South Asia; Resource and Industrial Geography; Urban Geography and Planning; Population; and Medical Geography. Interdisciplinary programs are available with other Departments in the University, and with other universities, in both physical and regional geography.

The University of Windsor is located on the Detroit River close to the downtown areas of both Windsor and Detroit, and to Wayne State University and the University of Michigan. The University has an IBM 360 computer, and a new library of 500,000 volumes. The Department of Geography is located in Windsor Hall, with map library, cartography and physical geography laboratories, and graduate study space. The Department operates a well-equipped climatological station on campus, and another on Pelée Island, Lake Erie.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The University of Windsor offers graduate courses in the September-December and January-April terms, though ancillary courses can be taken in Inter-Session and Summer School.

Windsor specializes in a quality Masters Program and admission is therefore granted on meritorious standing in previous undergraduate work. Normally a B+ average in a four-year Honors Program in geography or its equivalent (90 credits in Geography out of 132 undergraduate credits) from a recognized University admits to a one-year program. Candidates from other disciplines are admitted to a two-year program, others with a good record to a make-up year. Five semester-length courses, a language or computer skills requirements, and a thesis complete the M.A. degree.

Financial aid is available to excellent students through University teaching assistantships, and fellowships to a maximum of $5300, as well as from Province of Ontario graduate fellowships, Canada Council, National Research Council, and Central Mortgage and Housing Corporation.

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STAFF:

Anthony Blackbourn, Ph.D., Toronto, 1968, Associate Professor—economic, Europe

Morris Blenman, Ph.D., 1975, McGill, Lecturer—transportation, social geography, Caribbean

Frank C. Innes, Ph.D., McGill, 1967, Professor and Chairman—historical, Caribbean, North America, social indicators

John Jacobs, Ph.D., Colorado, 1973, Assistant Professor—climatology, Arctic studies

Amrit Lall, Ph.D., Indiana, 1958, Associate Professor—population, South Asia

Placido LaValle, Ph.D., Iowa, 1965, Associate Professor—geomorphology, quantitative methods

Jack Ransome, Ph.D., Harvard, 1955, Professor—urban and applied geography

Gerald Romsa, Ph.D., Florida, 1968, Associate Professor—urban planning, Anglo-America

Marie Sanderson, Ph.D., Michigan, 1965, Professor—climatology, energy and water balance

Ihor Stebelsky, Ph.D., Washington, 1967, Associate Professor—historical, Soviet Union

Alan Trenhaile, Ph.D., Wales, 1969, Associate Professor—coastal and glacial geomorphology

Paul Vandall, M.A., Western Ontario, 1961, Associate Professor—political, regional planning

Ronald Welch, M.A., Western Ontario, 1969, Co-ordinator of Cartographic Services

York University

GRADUATE PROGRAMME IN GEOGRAPHY

DEGREES OFFERED: M.A., Ph.D.

GRANTED July 1, 1976–June 30, 1977: 14 M.A.

GRADUATE STUDENTS IN RESIDENCE: 23 M.A. 6 Ph.D.

NOT IN RESIDENCE: 38 M.A.

DIRECTOR: Robert A. Murdie

FOR CATALOG AND FURTHER INFORMATION WRITE TO: Admissions Office, Faculty of Graduate Studies, York University, 4700 Keele Street, Downsview, Ontario, Canada M3J 1P3

PROGRAMMES AND RESEARCH FACILITIES: A doctoral programme is offered in three fields of specialisation; urban-economic geography; cultural-historical geography; and resource analysis. The Ph.D. degree is seen as a research degree, and students are not expected to take many courses.

Opportunities for research at the M.A. level are available in most of the main branches of geography. The M.A. student chooses one of two programmes: (a) two full courses and a thesis, (b) three full courses and a research paper. The completion of M.A. requirements normally takes at least twelve months, and full-time M.A. students are encouraged to complete all their requirements within two years.

The Department has a large faculty who have completed their undergraduate and graduate training in a great number of different institutions. The result is that the faculty encompass a wide variety of interests and points of view.

Facilities for graduate work in Geography are housed mainly in the Ross Building, and include office and workroom space, the departmental library, an electronic map digitizer, remote APL terminals and a physical geography laboratory equipped for a wide range of analytical work including soil, water, pollen, and vegetation analysis. The Department also has a fully equipped meteorological station. Holdings of the Scott Library at York are extensive both in Geography and in cognate fields. In addition there are significant libraries and archives elsewhere in Metropolitan Toronto. The University's computer facilities are based on an IBM System 370 Model 158, and the Department of Geography employs its own full-time programmer.

ACADEMIC PLAN, ADMISSION REQUIREMENTS, AND FINANCIAL AID: The academic session extends from mid-September until late March, leaving spring and summer free for writing the thesis or research paper.

The basic admission requirement at the M.A. level is an honours (four-year) B.A. from a recognized university with at least B (second class) standing, or qualifications acceptable as equivalent. Certain courses have specific prerequisites, and these are listed in the Calendar of the Faculty of Graduate Studies. Applicants to the doctoral programme should expect to complete their M.A. by the time they hope to enter the Ph.D. programme.

The programme can normally offer teaching assistantships to all full-time graduate students. In addition, first class students may be offered a York Scholarship which is currently valued at $2500. Geography students are also encouraged to apply for awards offered by a variety of external agencies including the Ontario Government (Ontario Graduate Scholarships), Canada Council, Central Mortgage and Housing Corporation, National Research Council and the Transportation Development Agency.

GRADUATE FACULTY:

Frank A. Barrett, Ph.D., Michigan State, 1973, Associate Professor—cultural, migration, medical

Alexander M. Blair, Ph.D. Illinois, 1965, Associate Professor—economic, resource management, recreation

Ronald Bordessa, Ph.D., Liverpool, 1971, Associate Professor—urban, perception studies, geographic theory

Ian A. Brookes, Ph.D., McGill, 1970, Associate Professor—geomorphology, pleistocene environments

James M. Cameron, Ph.D., Glasgow, 1970, Associate Professor—historical, Canadian pioneer settlements, migration

Howard Daugherty, Ph.D., UCLA, 1969, Associate Professor—biogeography, tropical ecosystems

J. Tait Davis, Ph.D., Clark, 1960, Professor—economic, urban, regional economic development and planning, Kenya

William C. Found, Ph.D., Florida, 1966, Professor—economic, rural resource use, quantitative methods, computer-aided instruction

Donald B. Freeman, Ph.D., Chicago, 1971, Associate Professor—economic, transportation and trade, quantitative methods, Africa

James R. Gibson, Ph.D., Wisconsin, 1967, Professor—historical and contemporary geography of Russia

Bryn Greer-Wootten, Ph.D., McGill, 1968, Associate Professor—urban, internal structure of cities, quantitative methods, research methodology

Conrad E. Heidenreich, Ph.D., McMaster, 1970, Associate Professor—cultural, site analysis, Indians of North America

Alan R. Hill, Ph.D., Belfast, 1968, Associate Professor—ecology, resource management

Larry E. Hodgins, Ph.D., McGill, 1970, Associate Professor—geomorphology, air photo interpretation

H. Peter M. Homenuck, Ph.D., Cincinnati, 1969, Associate Professor—urban, community and regional planning

Martin C. Kellman, Ph.D., Australian National, 1967, Professor—biogeography, tropical environments

William C. Mahaney, Ph.D., Colorado, 1970, Associate Professor—pedology, geomorphology, pleistocene environments

John U. Marshall, Ph.D., Toronto, 1968, Associate Professor—urban, regional systems of cities, research methodology

Bryan H. Massam, Ph.D., McMaster, 1969, Associate Professor—political, economic

Neil M. McArthur, Ph.D., Michigan, 1955, Associate Professor and Chairman, Department of Geography, Atkinson College—economic, air transportation and land use

H. Roy Merrens, Ph.D., Wisconsin, 1962, Professor—historical, North America

C. David Morley, Ph.D., Australian National, 1966, Associate Professor—urban, behavioural studies, recreation, geography and policy-making

Robert A. Murdie, Ph.D., Chicago, 1968, Associate Professor and Director, Graduate Programme in Geography—urban, internal structure of cities, quantitative methods

Glen B. Norcliffe, Ph.D., Bristol, 1970, Associate Professor—economic, regional development, quantitative methods

John P. Radford, Ph.D., Clark, 1974, Assistant Professor—urban historical geography, internal structure of cities

Arthur J. Ray, Ph.D., Wisconsin, 1971, Associate Professor—cultural, historical, North America

Edward S. Spence, Ph.D., Alberta, 1971, Associate Professor and Chairman, Department of Geography, Faculty of Arts—hydrology and water resources, resource management

George Tatham, Ph.D., Clark, 1934, Professor—political, history of geography, Western and Central Europe

Gerald E. Walker, Ph.D., UC, Berkeley, 1970, Assistant Professor—cultural, rural settlement and social structure, diffusion

John Warkentin, Ph.D., Toronto, 1960, Professor—historical, settlement of Canada, history of geography in Canada

Paul F. Wilkinson, Ph.D., Toronto, 1974, Assistant Professor—recreation

Roy I. Wolfe, Ph.D., Toronto, 1956, Professor—recreation, transportation

J. David Wood, Ph.D., Edinburgh, 1962, Professor—historical migration, settlement and frontiers, Canada

OTHER FULL-TIME FACULTY:

Bernard V. Gutsell, B.A., London, 1937, Professor—cartography

David R. Ingram, M.A., McMaster, 1968, Assistant Professor—urban, economic, quantitative methods

Donald MacIver, Ph.D. candidate, Alberta, Assistant Professor—climatology, resource management

Staff Directory

Aangeenbrug, Robert T. Kansas
Abington, O. Douglas SW Louisiana
Abler, Ronald F. Pennsylvania State
Acker, William J. Arizona State
Adams, John S. Minnesota
Adams, Russell B. Minnesota
Adams, William G. E. Kentucky
Aghassy, Jacob Pittsburgh
Agnew, John A. Syracuse
Ahmad, S. S. Saskatchewan
Ahmed, G. Munir Chicago State
Ahsan, S. Reza W. Kentucky
Aiken, Charles S. Tennessee
Albaum, Melvin Colorado
Aldrich, Frank T. Arizona State
Alexander, Charles S. Illinois
Alexander, Lewis M. Rhode Island
Alford, John J. W. Illinois
Allard, Michel Laval
Allderdice, William H. Memorial
Allen, James P. CSU, Northridge
Alonso, William Harvard
Alter, Manual Harvard
Altschul, D. Robert Arizona
Amedeo, Douglas M. Nebraska-Lincoln
Amin, Mutwakil CSU, Chico
Anderson, Burton L. CSU, Long Beach
Anderson, Duncan M. Carleton
Anderson, Lawrence C. Mankato State
Anderson, Thomas Bowling Green State
Anderzhon, Mamie Indiana U. of Pa.
Andrews, Howard F. Toronto
Antonini, Gustavo A. Florida
Arbingast, Stanley A. Texas
Archibold, O. W. Saskatchewan
Arey, David G. SIU-Carbondale
Armon, John A. McMaster
Armstrong, Helen J. Florida
Armstrong, R. Warwick Hawaii
Armstrong, Warwick McGill
Arnfield, John Ohio State
Aron, Robert H. Central Michigan
Arvidson, Richard CSU Los Angeles
Aschmann, Homer Riverside
Ash, Donald W. Indiana State
Ashbaugh, James G. Portland State
Aspbury, George Illinois State
Augelli, John P. Kansas
Austin, C. Murray N. Iowa
AuWerter, John P. Wisconsin-Madison

Backler, Alan L. Indiana
Baclawski, Joseph George Washington
Bacon, Robert S. Miami-Ohio
Bahre, Conrad J. Davis
Bailey, Harry Riverside
Bailey, Robert G. Utah
Bain, Nancy R. Ohio
Baker, Alan M. Toronto
Baker, Earl J. Florida State
Baker, Marvin W. Jr. Oklahoma
Baker, Virgil R. Arizona State
Baker, William B. SIU-Edwardsville
Baldwin, James Bowling Green State
Ball, John M. Georgia State
Ballas, Donald J. Indiana U. of Pa.
Banfield, Colin E. Memorial
Bangs, Herbert P. Towson State
Bannister, Everette N. Michigan
Bannister, Geoffrey Boston
Barb, Charles E. Jr. Oklahoma
Barber, Gerald M. Northwestern
Barendregt, Rene San Francisco State
Bariss, Nicholas Nebraska-Omaha
Barker, M. L. Simon Fraser
Barnes, James A. Georgia
Barnum, H. Gardiner Vermont
Barr, Brenton M. Calgary
Barr, W. Saskatchewan
Barrett, Elinore M. New Mexico
Barrett, Frank A. York
Barrett, Ward J. Minnesota
Barrow, David C. Georgia
Barry, Roger G. Colorado
Barton, Bonnie Minnesota
Barton, Byron K. Indiana State
Barton, Thomas F. Indiana
Basile, David G. N. Carolina-Chapel Hill
Basile, Robert M. Toledo
Bass, George F. Texas A&M
Bastian, Robert W. Indiana State
Batchelder, Robert B. Boston
Bater, James H. Waterloo
Baum, Werner Wisconsin-Milwaukee
Baumann, Duane D. SIU-Carbondale
Bayer, Karel Wisconsin-Milwaukee
Beatty, George F. Ball State
Beazley, Ronald I. SIU-Carbondale
Bechtol, Bruce E. CSU, Chico
Bederman, Sanford H. Georgia State
Bedford, John L. N. Carolina-Charlotte
Bednarz, Robert S. Northwestern
Behling, Robert E. W. Virginia
Beiswenger, Ronald Wyoming
Bélanger, Marcel Laval
Bell, Thomas L. Tennessee
Bennett, Charles F. UCLA
Bennett, David Carleton
Bennett, Don C. Indiana

Bennett, Iven New Mexico
Berdoulay, Vincent Ottawa
Berentsen, William H. Georgia
Bergen, John V. W. Illinois
Berger, C. Rainer UCLA
Bergmann, John F. Alberta
Bergsteinsson, J. L. Saskatchewan
Bernard, Frank E. Ohio
Bernier, Jacques Laval
Berry, Brian Harvard
Berry, Leonard Clark
Best, Alan Boston
Best, Thomas CSU, Los Angeles
Beveridge, Ronald M. W. Illinois
Beyer, Jacquelyn L. Colorado
Beyers, William B. Washington
Bhardwaj, Surinder M. Kent State
Biechler, Michael CSU, Fresno
Biel, Howard S. Vermont
Bier, James A. Illinois
Bigelow, Bruce Texas
Bingham, James M. W. Kentucky
Birchard, Ralph E. E. Carolina
Bird, J. Brian McGill
Birdsall, Stephen N. Carolina-Chapel Hill
Bjorklund, E. M. W. Ontario
Black, Lloyd D. N. Illinois
Black, William R. Indiana
Blackbourn, Anthony Windsor
Bladen, W. A. Kentucky
Blair, Alexander M. York
Bland, Warren R. CSU, Northridge
Blauvelt, John F. W. Illinois
Bleiker, Hans Wyoming
Blenman, Morris Windsor
Blick, James D. San Diego State
Bloemer, Hubert L. Ohio
Blok, Jack E. Carolina
Bloom, Howard Harvard
Bloomfield, Gerald T. Guelph
Blouet, Brian W. Nebraska-Lincoln
Blount, Stanley F. SUNY-Albany
Blum, Frederick Chicago State
Bockemuehl, Harold W. Montana
Boehm, Richard G. Missouri-Columbia
Bohland, James R. Oklahoma
Boisvert, Jean-Jacques Sherbrooke
Boland, John Johns Hopkins
Bone, R. M. Saskatchewan
Bonn, Ferdinand Sherbrooke
Boots, Barry N. Wilfrid Laurier
Borchert, John R. Minnesota
Bordessa, Ronald York
Bordne, Erich F. Kent State
Borgstrom, Georg Michigan State
Boswell, Thomas Miami
Bourne, Larry S. Toronto
Bousquet, Jean-Claude Ottawa
Bovis, M. J. British Columbia
Bowden, Kenneth L. N. Illinois
Bowden, Leonard Riverside
Bowden, M. George Texas
Bowden, Martyn J. Clark
Bowen, William A. CSU, Northridge
Boxer, Baruch Rutgers
Bradbury, David E. Arizona
Bradbury, J. H. McGill
Bradfield, William J. Ohio State
Brandhorst, L. Carl Oregon College of Ed.
Brassel, Kurt SUNY-Buffalo
Brazel, Anthony J. Arizona State
Bridwell, James G. SIU-Edwardsville
Brierley, J. S. Manitoba
Brinkman, Leonard W. Tennessee
Brinkmann, Waltraud Wisconsin-Madison
Britton, John N. H. Toronto
Brockmann, Vernon W. Chicago State
Brodsky, Harold Maryland
Brook, George A. Georgia
Brooke, Clarke H., Jr. Portland State
Brookes, Ian A. York
Brooks, William D. Indiana State
Brooner, William Towson State
Brophy, David SUNY-Buffalo
Brown, Dwight A. Minnesota
Brown, H. James Harvard
Brown, Kathleen M. Michigan
Brown, Lawrence A. Ohio State
Brown, Marilyn A. Illinois
Brown, Michael C. Alberta
Brown, R. C. Simon Fraser
Brown, Ralph C. North Dakota
Brown, Robert H. Wyoming
Brown, S. Earl Ohio State
Brown, W. J. Manitoba
Browning, Clyde N. Carolina-Chapel Hill
Brueckheimer, W. R. Florida State
Bruman, Henry J. UCLA
Brunn, Stanley Michigan State
Brunnschweiler, D. Michigan State
Brush, John E. Rutgers
Brush, Lucien Johns Hopkins
Bryan, Rorke Toronto
Bryant, Christopher R. Waterloo
Bryson, Reid Wisconsin-Madison
Buckholts, Paul O. E. Michigan
Budin, Morris SUNY-Binghamton
Buford, Joseph Bowling Green State
Bullock, Ronald A. Waterloo
Bunce, Michael Toronto
Bunkse, Edmunds V. Delaware
Bunting, Brian T. McMaster
Bunting, Trudi Waterloo
Bureau, Luc Laval
Burghardt, Andrew F. McMaster
Burnett, G. Wesley Montana

Burnett, K. Patricia Oklahoma
Burns, Elizabeth K. Utah
Burrill, Robert M. Georgia
Burton, Ian Toronto, Clark
Bushong, Allen D. South Carolina
Bussières, Paul Laval
Bussing, Charles Kansas State
Butler, Joseph H. SUNY-Binghamton
Butler, R. W. W. Ontario
Buttimer, Anne Clark
Butzer, Karl W. Chicago
Byrne, Roger Berkeley
Byron, William CSU, Los Angeles

Cadwallader, Martin Wisconsin-Madison
Cady, John Johns Hopkins
Caine, T. Nelson Colorado
Caldwell, Harry H. Idaho
Calef, Wesley C. Illinois State
Calkins, Hugh SUNY-Buffalo
Cameron, Francis X. Rhode Island
Cameron, James M. York
Campbell, Ian A. Alberta
Campbell, Robert D. New Mexico
Cannon, J. B. Queen's
Cantin, Adelord J. Indiana State
Capone, Donald L. Miami
Carey, George W. Rutgers
Caris, Susan Lynn Rutgers
Carlson, Alvar Bowling Green State
Carlson, Steven A. N. Michigan
Carmin, Robert L. Ball State
Carney, George O. Oklahoma State
Carpenter, Norman T. Kansas
Carr, Eugene E. Utah
Carson, Michael A. McGill
Carter, George F. Texas A&M
Carter, James R. Tennessee
Cartwright, D. G. W. Ontario
Casetti, Emilio Ohio State
Castner, H. W. Queen's
Catau, John C. N. Carolina-Charlotte
Catchpole, A. J. W. Manitoba
Cave, Peter W. Toronto
Caviedes, Cesar N. Regina
Cecil, R. G. W. Ontario
Chakravarti, A. K. Saskatchewan
Chamberlin, Charles Johns Hopkins
Chambers, Jack V. Indiana U. of Pa.
Chang, Jen-hu Hawaii
Chang, Kang-Tsung North Dakota
Chang, Kuei-sheng Washington
Chang, Sen-dou Hawaii
Chang, Stephen Bowling Green State
Changnon, Stanley Illinois
Chapman, J. D. British Columbia
Chapman, Murray Hawaii

Chardon, Roland E. Louisiana State
Charlton, Robert B. Alberta
Chase, Harrison V. Florida State
Chatham, Ronald Oregon College of Ed.
Chaves, Antonio F. Maryland
Cherry, William N. Tennessee
Chestang, Ennis L. E. Carolina
Choquette, Roch Sherbrooke
Chow, Willard T. Hawaii
Christensen, David E. SIU-Carbondale
Christian, Charles M. Maryland
Chubb, Michael Michigan State
Chung, Roy N. Iowa
Church, M. British Columbia
Cichanski, Allen E. Michigan
Cirrincione, Joseph Maryland
Clark, John R. UCLA
Clark, Redmond Boston
Clark, Robert E. N. Iowa
Clark, William A. V. UCLA
Clarke, John Carleton
Clarkson, James D. Michigan
Clay, James W. N. Carolina-Charlotte
Clayton, Christopher Santa Barbara
Clément, Pierre Sherbrooke
Clements, Donald W. SIU-Edwardsville
Cleveland, John H. Indiana State
Clibbon, Peter B. Laval
Cobb, David A. Illinois
Cobban, James L. Ohio
Cockrill, W. Willard W. Kentucky
Code, W. R. W. Ontario
Coffin, Harry CSU, Los Angeles
Cohen, Saul B. Clark
Cohon, Jared Johns Hopkins
Coiner, Jerry C. Columbia
Colakovic, Branko Mankato State
Cole, Alan L. N. Illinois
Cole, Chester F. CSU, Fresno
Cole, David B. N. Colorado
Collier, James E. SIU-Edwardsville
Collins, Basil A. Toledo
Collins, Charles O. N. Colorado
Collins, William F. CSU, Chico
Colombini, Victor Ohio State
Colombo, Albert A. San Diego State
Comeaux, Malcolm L. Arizona State
Conkling, Edgar C. SUNY-Buffalo
Conner, Doral Glen W. Kentucky
Conway, Dennis Indiana
Conzen, Michael P. Chicago
Cook, Earl Texas A&M
Cooke, Daniel W. Murray State
Cooper, Karyn G. Memorial
Copley, Richard British Columbia
Cordes, Lawrence D. Calgary
Corey, Kenneth E. Cincinnati
Costa, John E. Denver

Coulson, Michael R. C. Calgary
Court, Arnold CSU, Northridge
Courtney, Dale E. Portland State
Cowen, David J. South Carolina
Cox, Carleton W. Georgia
Cox, Kevin R. Ohio State
Craig, Alan Florida Atlantic
Crain, Clark N. Denver
Cramer, Robert E. E. Carolina
Crampton, C. B. Simon Fraser
Crawford, Margaret E. Wayne State
Crawford, Nicholas C. W. Kentucky
Crawford, Paul Bowling Green State
Crawford, Roger J. San Francisco State
Crist, Raymond E. Florida
Critchfield, Howard J. W. Washington
Croft, Jerry D. Oklahoma State
Crosby, John A. CSU, Fresno
Cross, Clark I. Florida
Cross, Ralph D. S. Mississippi
Crowley, John H. Montana
Crowley, John M. Montana
Cuff, David J. Temple
Cunningham, F. F. Simon Fraser
Currey, Donald R. Utah
Curry, Leslie Toronto
Cutler, Irving Chicago State
Cybriwsky, Roman A. Temple

Dacey, Michael F. Northwestern
Dagodag, William Tim CSU, Northridge
Dahlberg, Richard E. N. Illinois
Dahms, Fredric A. Guelph
Dale, Edmund H. Regina
Dando, William A. North Dakota
Daniels, Belden Harvard
Darden, Joe T. Michigan State
Dart, John O. Portland State
Daugherty, Howard York
Davenport, William A. Mankato State
Davidson-Arnott, Robin G. Guelph
Davidson, W. V. Louisiana State
Davies, Christopher S. Texas
Davies, John A. McMaster
Davies, Wayne K. D. Calgary
Davis, DeWitt Ohio State
Davis, J. Tait York
Davis, James L. W. Kentucky
Davis, Jerry M. Indiana
Davis, John C. Kansas
Day, J. Chadwick Waterloo
Day, Michael Wisconsin-Milwaukee
Day, Richard L. Idaho
Dean, William G. Toronto
Dear, Michael J. McMaster
deBlij, Harm J. Miami
Debysingh, Molly CSU, Long Beach
Decker, Bryce G. Hawaii
Decker, Wayne L. Missouri-Columbia
DeKoninck, Rodolphe Laval
deLaubenfels, David J. Syracuse
DeLucia, Alan A. Idaho
Demko, George J. Ohio State
Denevan, William M. Wisconsin-Madison
Denike, K. British Columbia
Denis, Paul-Yves Laval
Denney, Evan Montana
Dent, Borden D. Georgia State
Deshler, Walter W. Maryland
Deskins, Donald R., Jr. Michigan
Detwyler, Thomas R. Michigan
DeVorsey, Louis Georgia
Dewey, Kenneth F. Nebraska-Lincoln
Dickason, David G. W. Michigan
Dicken, S. N. Oregon
Dickinson, Robert E. Arizona
Diem, Aubrey Waterloo
Dienes, Leslie Kansas
Dierickx, C. Wallace NE Illinois
Dietz, John L. N. Colorado
Diffenderfer, N. R. Towson State
Dilamarter, Ronald R. W. Kentucky
Dilisio, James E. Towson State
Dillman, C. Daniel N. Illinois
Dillon, John Towson State
Dillon, Lowell I. Ball State
DiMartino, David R. Ohio State
Dingemans, Dennis J. Davis
Dobson, Michael W. SUNY-Albany
Doebele, William Harvard
Doeppers, Daniel F. Wisconsin-Madison
Dohrs, Fred E. Wayne State
Dojcsak, G. Victor Regina
Donahue, John J. Montana
Donaldson, Alan C. W. Virginia
Dooley, Mary T. Mankato State
Doran, Edwin Jr. Texas A&M
Dorion, Henri Laval
Doughty, Robin W. Texas
Douglas, Arthur V. Nebraska-Lincoln
Douglas, David Ottawa
Downs, Roger M. Pennsylvania State
Dozier, Jeffrey C. Santa Barbara
Drago, Frank Georgia State
Drake, J. J. McGill
Draper, Dianne L. Memorial
Drummond, R. Norman McGill
Drummond, Robert R. Indiana State
Dubois, Jean-Marie Sherbrooke
Ducsik, Dennis W. Clark
Dudycha, Douglas Waterloo
Dueker, Kenneth J. Iowa
Dulgarian, Martin E. Miami-Ohio
Dunbar, Gary S. UCLA
Duncan, J. S. British Columbia

Dunkle, John R. Florida
Dunlap, Robert Harvard
Durrenberger, Robert W. Arizona State
Dury, George H. Wisconsin-Madison
Dutt, Ashok Akron
Dworkin, Daniel SIU-Carbondale
Dyreson, Del Florida State

Eagleman, Joe R. Kansas
Earick, Arthur D. CSU, Fullerton
Earney, Fillmore C. F. N. Michigan
Eason, A. Paul Mississippi State
Easton, Robert F. NE Illinois
Ebert, Charles H. V. SUNY-Buffalo
Edelen, Walter T. Toledo
Eder, Herbert M. CSU, Hayward
Edgell, Michael C. R. Victoria
Edwards, Clinton Wisconsin-Milwaukee
Edwards, Jay D. Louisiana State
Ehemann, Jane H. W. Washington
Ehrhardt, Dennis K. SW Louisiana
Eichenlaub, Val L. W. Michigan
Eidemiller, Donald I. San Diego State
Eidt, Robert C. Wisconsin-Milwaukee
Eilers, H. Peter CSU, Fullerton
Eliot Hurst, M. E. Simon Fraser
Ellefsen, Richard A. San José State
Emery, Byron E. Toledo
England, John H. Alberta
English, Paul Ward Texas
Engstrom, Wayne N. CSU, Fullerton
Entrikin, J. Nicholas UCLA
Epperson, Terry E. Appalachian State
Epstein, Bart J. Kent State
Erb, David K. Waterloo
Erhart, Rainer R. W. Michigan
Ericksen, Sheldon D. CSU, Long Beach
Erickson, Frank A. Kent State
Erickson, Kenneth A. Colorado
Erickson, Rodney A. Pennsylvania State
Ernst, Robert T. E. Michigan
Ervin, Roger E. CSU, Fresno
Espenshade, Edward B. Northwestern
Estes, John E. Santa Barbara
Evans, Simon M. Memorial
Evenden, L. J. Simon Fraser
Ewing, Gordon McGill
Eyre, John D. N. Carolina-Chapel Hill
Eyton, J. Ronald Illinois

Fahey, Barry D. Guelph
Fairbairn, Kenneth J. Alberta
Falk, Thomas Pennsylvania State
Farley, A. L. British Columbia
Farmer, Geoffrey H. Memorial
Farrell, John P. N. Michigan
Fauth, Gary Harvard
Fellmann, Jerome D. Illinois
Fende, Ivan N. Michigan
Fentem, Arlin D. W. Illinois
Fernald, Edward A. Florida State
Field, Chris Montana
Field, Neil C. Toronto
Field, Richard T. Delaware
Field, Thomas P. Kentucky
Finch, William A. Jr. San Diego State
Fink, L. Dee Oklahoma
Firman, David Towson State
Fish, M. Gerald Rutgers
Fisher, Albert L. Utah
Fisher, Jack Johns Hopkins
Fisher, James S. Georgia
Fishman, Alan R. San José State
Fitzgerald, Denis P. Carleton
FitzGibbon, J. E. Saskatchewan
Fitzsimmons, Allan K. George Washington
Fitzsimons, Dennis E. Utah
Flannery, James J. Wisconsin-Milwaukee
Fleming, Douglas K. Washington
Flierl, Howard H. SUNY-Albany
Florin, John W. N. Carolina-Chapel Hill
Fonaroff, L. Schuyler Maryland
Ford, Derek C. McMaster
Ford, Larry R. San Diego State
Forward, Charles N. Victoria
Foster, Harold D. Victoria
Foster, R. H. Manitoba
Foster, Richard H. N. Colorado
Found, William C. York
Fowler, Phillip M. Wyoming
Fox, Michael F. Carleton
Franckowiak, Eugene N. Toledo
Frank, Ralph Bowling Green State
Franklin, William A. Murray State
Frazier, John SUNY-Binghamton
Fredrich, Barbara E. San Diego State
Freeman, Donald B. York
French, Hugh Ottawa
Frenkel, Robert E. Oregon State
Frey, Glen Bowling Green State
Frost, Melvin J. Arizona State
Fryer, Donald W. Hawaii
Fuchs, Roland J. Hawaii
Fuller, Anthony M. Guelph
Fuller, Gary A. Hawaii
Fung, K. I. Saskatchewan

Gabler, Robert E. W. Illinois
Gade, Daniel W. Vermont
Gade, Ole Appalachian State
Gagnon, Hugues Ottawa
Gagnon, Robert Sherbrooke
Gaile, Gary L. Northwestern
Gaines, John F. CSU, Northridge

Gale, Stephen Columbia
Gallagher, James Oregon College of Ed.
Galloway, J. H. Toronto
Ganyard, David W. W. Illinois
Garcia, D. Clark
Gardner, James A. Waterloo
Garnier, Benjamin McGill
Garst, Ronald D. Maryland
Gassaway, Alexander R. Portland State
Gault, Thomas G. Indiana U. of Pa.
Gauthier, Howard L. Ohio State
Gavis, Jerome Johns Hopkins
Gentilcore, R. Louis McMaster
George, Glenn CSU, Fullerton
Gersmehl, Philip J. Minnesota
Getis, Arthur Illinois
Gibson, E. M. Simon Fraser
Gibson, James R. York
Gibson, Lay J. Arizona
Gilbert, R. Queen's
Gildersleeve, C. R. Nebraska-Omaha
Gill, Don A. Alberta
Ginsburg, Norton Chicago
Giovinetto, Mario B. Calgary
Girard, William W. Mankato State
Glacken, Clarence J. Berkeley
Gladden, James W. Jr. S. Mississippi
Glick, Thomas F. Boston
Gober-Meyers, Patricia L. Arizona State
Goff, James F. Mankato State
Goggins, Lathardus Akron
Goheen, Peter G. Queen's
Gohstand, Robert CSU, Northridge
Golant, Stephen M. Chicago
Golledge, Reginald G. Santa Barbara
Gomez-Ibanez, Tony Harvard
Gonzalez, Alfonso Calgary
Goodchild, M. F. W. Ontario
Goodman, James M. Oklahoma
Goodman, Lowell R. N. Iowa
Goodman, Robert J. Wayne State
Goodwin, Cecil W. Pennsylvania State
Gordley, Avis Harvard
Gordon, Burton L. San Francisco State
Gordon, Douglas H. New Mexico
Gordon, Marvin George Washington
Gore, Dorothy J. SIU-Edwardsville
Gosenfeld, Norman CSU, Los Angeles
Gosling, L. A. Peter Michigan
Gosnold, William D. Nebraska-Omaha
Gough, G. Patrick Guelph
Gould, Peter R. Pennsylvania State
Graf, William L. Iowa
Graff, Thomas O. Arkansas
Granger, Orman Berkeley
Greco, Peter V. Oregon College of Ed.
Green, Jerry E. Miami-Ohio
Greenberg, Michael R. Rutgers
Greenland, David E. Colorado
Greenwood, Brian Toronto
Greenwood, Ned H. San Diego State
Greer, Charles E. Texas
Greer-Wootten, Bryn York
Gregor, Howard F. Davis
Griffin, Donald W. W. Illinois
Griffin, Ernst C. San Diego State
Griffin, Paul F. Oregon College of Ed.
Griffiths, Thomas M. Denver
Grimes, Thomas P. Ball State
Grivetti, Louis E. Davis
Groenhoff, Edwin L. Mankato State
Grogger, Paul K. Colorado
Groop, Richard Michigan State
Groves, Paul A. Maryland
Guelke, Leonard Waterloo
Guernsey, James L. Indiana State
Guest, B. Ross N. Illinois
Gunter, John D. N. Iowa
Gustafson, Glenn C. SUNY-Binghamton
Gutsell, Bernard V. York
Guzman-Rivas, Pablo Colorado
Gvosdetsky, Vasyl M. Utah

Haag, William G. Louisiana State
Haddock, Kenneth C. Towson State
Hadley, Richard F. Denver
Hage, Keith D. Alberta
Hagle, Paul I. Oklahoma State
Haglund, Donn K. Wisconsin-Milwaukee
Haigh, Martin J. Chicago
Haiman, Richard CSU, Chico
Hale, Gerry A. UCLA
Hall, E. Lorene E. Michigan
Hall, Frederick L. McMaster
Hall, Jerry A. Wilfrid Laurier
Hall, William B. Idaho
Hamelin, Louis-Edmond Laval
Hamill, Louis Calgary
Hammond, Edwin H. Tennessee
Han, Sin-Fong CSU, Los Angeles
Hance, William A. Columbia
Handcock, Gordon Memorial
Hanham, Robert Q. Oklahoma
Hanke, Steve Johns Hopkins
Hankins, William W. E. Carolina
Hannell, Frank G. McMaster
Hannes, Gerald P. CSU, Fullerton
Hansen, Carl Riverside
Hanson, Perry O. SUNY-Buffalo
Hanson, Susan SUNY-Buffalo
Hanten, Edward W. Akron
Hardwick, Walter G. British Columbia
Hare, F. Kenneth Toronto
Haring, L. Lloyd Arizona State
Harman, Jay R. Michigan State

Harmon, Lawrence M. Utah
Harnapp, Vernon Akron
Harper, Robert A. Maryland
Harries, Keith D. Oklahoma State
Harris, Chauncy D. Chicago
Harris, R. C. British Columbia
Harris, Stuart A. Calgary
Harrison, David Harvard
Harrison, Peter Ottawa
Hart, John Fraser Minnesota, E. Carolina
Hartshorn, Truman A. Georgia State
Hartshorne, Richard Wisconsin-Madison
Harvey, David Johns Hopkins
Harvey, Milton E. Kent State
Haupert, John S. SUNY-Buffalo
Havens, James M. Rhode Island
Hawkes, H. Bowman Utah
Hawley, Arthur J. N. Carolina-Chapel Hill
Hay, John British Columbia
Hays, H. Donald Alabama
Haynes, Kingsley E. Texas
Hayter, R. Simon Fraser
Hayuk, Hlib S. Towson State
Head, C. Grant Wilfrid Laurier
Hecht, Alfred Wilfrid Laurier
Hecht, Melvin E. Arizona
Hecock, Richard D. Oklahoma State
Hegen, Edmund E. W. Kentucky
Hehr, John G. Miami
Heiden, Noland R. Indiana U. of Pa.
Heidenreich, Conrad E. York
Heidt, Herbert C. Clark
Heiges, Harvey E. San Diego State
Heiser, W. Wayne SUNY-Albany
Helburn, Nicholas Colorado
Helgren, David M. Davis
Helin, Ronald A. CSU, Fullerton
Heller, Charles F. W. Michigan
Henderson, David A. CSU, Northridge
Henderson, Floyd M. SUNY-Albany
Henkel, Ray Arizona State
Henrie, Roger L. Utah, Central Michigan
Henry, James Florida
Henry, Norah F. SUNY-Binghamton
Herman, Vera L. Ohio State
Herold, Laurance C. Denver
Herrem, Peter D. Calgary
Hesler, James L. Texas
Hess, Charles F. SIU-Edwardsville
Hewes, Leslie Nebraska-Lincoln
Hetrick, Virginia R. Florida
Hewings, G. J. D. Illinois
Hewitt, Kenneth Wilfrid Laurier
Heyl, R. James Georgia
Hickin, E. J. Simon Fraser
Hidore, John J. Indiana
Higgs, Gary K. Mississippi State
High, Colin J. Columbia
Highsmith, R. M., Jr. Oregon State
Hill, A. David Colorado
Hill, Alan R. York
Hilliard, Sam B. Louisiana State
Hills, Theo L. McGill
Hiltner, John Bowling Green State
Hodge, David C. Washington
Hodgins, Larry E. York
Hodgkins, Jordan A. Kent State
Hodgson, M. John Alberta
Hodler, Thomas W. W. Michigan
Hoerauf, Eugene A. W. Washington
Hoffman, George W. Texas
Hoffman, Lawrence A. Toledo
Hoffman, Wayne L. W. Kentucky
Hoffpauir, Robert CSU, Northridge
Holcomb, Briavel Rutgers
Hole, Francis D. Wisconsin-Madison
Holland, Peter G. McGill
Hollingsworth, John M. Indiana
Holly, Brian P. Kent State
Holmes, J. Queen's
Holtgrieve, Donald G. CSU, Hayward
Holz, Robert K. Texas
Holzner, Lutz Wisconsin-Milwaukee
Homenuck, H. Peter M. York
Honey, Rex D. Iowa
Hook, John C. Indiana State
Hooks, W. Gary Alabama
Hooson, David J. M. Berkeley
Hopkins, Edgar M. N. Carolina-Charlotte
Hordon, Robert M. Rutgers
Hornbeck, David, Jr. CSU, Northridge
Horsfall, R. B. Simon Fraser
Horsley, A. Doyne SIU-Carbondale
Horst, Oscar H. W. Michigan
Horton, Frank E. SIU-Carbondale
Hossé, H. A. W. Ontario
Hough, Richard F. San Francisco State
Howard, Richard A. Clark
Howard, Robert B. CSU, Northridge
Howarth, Philip J. McMaster
Howatson, Charles H. Victoria
Howe, George M. E. Michigan
Howe, Robert Indiana State
Howenstine, William NE Illinois
Howitt, Arnold Harvard
Hoy, Don R. Georgia
Hsieh, Chiao-min Pittsburgh
Hsu, Mei-Ling Minnesota
Hsu, Shin-yi SUNY-Binghamton
Huckabay, James L. Colorado
Hudson, John C. Northwestern
Huefner, Robert P. Utah
Huff, David L. Texas
Huff, James O., Jr. UCLA
Hufty, André Laval
Hughes, John D. N. Michigan

Hulbert, Francois Laval
Hulquist, John F. Idaho
Hultquist, Nancy B. Idaho
Hunker, Henry L. Ohio State
Hunter, John M. Michigan State
Hutchinson, L. Hugh Georgia State
Hutchinson, I. Simon Fraser
Huttlinger, Frank D. Alabama
Hyma, B. Waterloo

Imperatore, William Appalachian State
Ingalls, Gerald L. N. Carolina-Charlotte
Ingram, David R. York
Ingram, Gregory Harvard
Innes, Frank C. Windsor
Ironside, R. Geoffrey Alberta
Irving, Robert M. Waterloo
Irwin, Daniel SIU-Carbondale
Irwin, David H. Murray State
Isaac, Ronald H. Ohio
Isaacs, Reginald Harvard
Ives, Jack D. Colorado

Jackman, Albert H. W. Michigan
Jackson, Edgar L. Alberta
Jackson, W. A. Douglas Washington
Jacobs, John Windsor
Jacobson, Daniel Michigan State
Jakle, John A. Illinois
Jakubs, John F. Indiana
James, Preston Florida Atlantic, Syracuse
Janelle, D. G. W. Ontario
Janiskee, Robert L. South Carolina
Jarvis, Richard SUNY-Buffalo
Jaworski, Eugene E. Michigan
Jenks, George F. Kansas
Jenner, Carol B. Wisconsin-Madison
Jensen, J. Granville Oregon State
Jensen, John R. Georgia
Jensen, Kenneth Oregon College of Ed.
Jensen, Robert G. Syracuse
Jett, Stephen C. Davis
Johannessen, C. L. Oregon
Johansen, Harley E. W. Virginia
Johnsen, Norman C. SIU-Edwardsville
Johnson, Claude Riverside
Johnson, David C. SW Louisiana
Johnson, Denis B. Alberta
Johnson, Donald L. Illinois
Johnson, Douglas L. Clark
Johnson, Eric S. Illinois State
Johnson, Gary E. North Dakota
Johnson, J. Peter Jr. Carleton
Johnson, Ladd L. CSU, Chico
Johnson, Lane J. Temple
Johnson, Morris E. Utah
Johnson, Peter Ottawa
Johnson, R. Waterloo
Johnson, Warren A. San Diego State
Johnson, William C. Oklahoma
Jones, David L. SIU-Carbondale
Jones, David M. South Carolina
Jones, David R. W. Calgary
Jones, Donald W. Chicago
Jones, J. Richard Miami
Jones, Peter R. McMaster
Jopling, Alan V. Toronto
Jost, Thaddeusz Ottawa
Joyal, Alfred N. N. Michigan
Jumper, Sidney R. Tennessee
Justham, Stephen A. Ball State

Kahn, Alfred SIU-Edwardsville
Kain, John F. Harvard
Kakiuchi, George H. Washington
Kalkstein, Laurence S. Delaware
Kane, Henry E. Ball State
Kane, Philip S. CSU, Northridge
Kang, Darshan S. Montana
Kansky, Karel J. Pittsburgh
Kapaloski, Lee Utah
Karabenick, Edward CSU, Long Beach
Karan, P. P. Kentucky
Karaska, Gerald J. Clark
Kariel, Herbert G. Calgary
Karinen, Arthur E. CSU, Chico
Kasperson, Roger E. Clark
Kates, Robert W. Clark
Katzman, Martin T. Harvard
Kay, Jeanne Utah
Kay, Paul A. Utah
Kaye, B. Manitoba
Kaye, John M. Mississippi State
Kayser, Edmond Ottawa
Keady, Donald M. Mississippi State
Kearns, Kevin C. N. Colorado
Keber, Robert L. Appalachian State
Keddie, Phillip D. Guelph
Keen, Elmer A. San Diego State
Kellerman, Aharon Miami
Kelley, Arthell S. Mississippi
Kelley, Phillip S. Mankato State
Kellman, Martin C. York
Kelly, Kenneth Guelph
Kelsey, Thomas F. Pittsburgh
Kemp, W. McGill
Kennamer, Lorrin G. Texas
Kennelly, Robert A. CSU, Hayward
Kenyon, James B. Georgia
Kerr, Donald Toronto
Kershaw, Herbert Oklahoma State
Kesel, Richard H. Louisiana State
Kesik, Andrzej Waterloo

Kesseli, John E. Berkeley
Ketteringham, W. J. CSU, Fullerton
Kiang, Ying-Cheng NE Illinois
Kiefer, Wayne E. Central Michigan
Kiewiet de Jonge, E. J. C. San Diego State
Kilbridge, Maurice Harvard
Kimber, Clarissa Texas A&M
Kimerling, A. Jon Oregon State
Kimura, John C. CSU, Long Beach
Kind, Thomas C. Murray State
King, James W. Utah
King, Leslie J. McMaster
King, Paul E. Columbia
King, R. H. W. Ontario
Kingsbury, Robert C. Indiana
Kiraldi, Louis W. Michigan
Kircher, Harry B. SIU-Edwardsville
Kirchherr, Eugene C. W. Michigan
Kirkeberg, Max C. San Francisco State
Kish, George Michigan
Klemas, Vytautas Delaware
Kline, Hibberd V. B. Pittsburgh
Klingensmith, Robert D. Ohio State
Klink, John C. Miami-Ohio
Kniffen, Fred B. Louisiana State
Knight, C. Gregory Pennsylvania State
Knight, David B. Carleton
Knight, Prentice L., III Kansas
Knos, Duane F. Clark
Knox, James C. Wisconsin-Madison
Koch, Walter F. Alabama
Koelsch, William A. Clark
Koepke, Robert L. SIU-Edwardsville
Kohler, Fred E. W. Illinois
Kohn, Clyde F. Iowa
Kolars, John F. Michigan
Koller, E. Frank CSU, Fresno
Kollmorgen, Walter M. Kansas
Kopec, Richard J. N. Carolina-Chapel Hill
Kornhauser, David H. Hawaii
Koroscil, P. M. Simon Fraser
Korsok, Albert Akron
Kosinski, Leszek A. Alberta
Kostanick, Huey Louis UCLA
Kostbade, J. Trenton Missouri-Columbia
Kouba, Leonard J. N. Illinois
Koutsopoulos, Konstantinos Iowa
Kovacik, Charles F. South Carolina
Kramer, Fritz L. Portland State
Kratzmeier, Walter H. Towson State
Krausse, Gerald H. Rhode Island
Kreske, Richard D. Miami
Kreutzwiser, Reid D. Guelph
Kriesel, Karl M. NE Illinois
Kromm, David E. Kansas State
Krueger, Ralph R. Waterloo
Krumbein, W. C. UCLA
Krumme, Gunter Washington
Kruse, Cornelius W. Johns Hopkins
Kubiak, Timothy J. E. Kentucky
Kuchler, A. William Kansas
Kugler-Gagnon, M. Ottawa
Kulkarni, Gopal S. Indiana U. of Pa.
Kunstmann, John Bowling Green State
Kuntz, Leonard I. Pittsburgh
Kupsch, W. O. Saskatchewan
Kureth, Elwood J. C. E. Michigan
Kus, James S. CSU, Fresno

Ladd, Florence C. Harvard
Ladd, Helen Harvard
Lagarec, Daniel Ottawa
Lahey, James F. Oregon State
Lai, David C. Y. Victoria
Lakshmanan, T. R. Johns Hopkins
Lall, Amrit Windsor
Lamb, Robert B. CSU, Northridge
Lampe, Fred A. SIU-Edwardsville
Lamme, Ary J. III Florida
Langtvet, O. W. Ontario
Lantis, David W. CSU, Chico
Larimore, Ann E. Michigan
Larimore, Philip B. Louisiana State
Larkin, Robert P. Colorado
Laswell, Troy J. Mississippi State
Latham, James Florida Atlantic
Latta, Lois Indiana State
LaValle, Placido Windsor
Lawson, Merlin P. Nebraska-Lincoln
Laycock, Arleigh H. Alberta
Lea, Anthony C. Minnesota
Leahy, Edward E. Carolina
Leahy, Palmyra E. Carolina
LeDrew, Ellsworth Waterloo
Lee, Chung-Myun Utah
Lee, David Florida Atlantic
Lee, Robert E. CSU, Fresno
Lee, Russell Boston
Lee, Tso-Hwa CSU, Fullerton
Lee, Yuk Colorado
Lehrer, Paul L. N. Colorado
Leighly, John B. Berkeley
Leinbach, Thomas R. Kentucky
Lemmon, Robert E. N. Carolina-Charlotte
Lemon, James T. Toronto
Lentnek, Barry SUNY-Buffalo
Leskinen, Paul H. Denver
Letarte, Jacques Laval
Lewis, Anthony J. Louisiana State
Lewis, Donald L. Toledo
Lewis, George K. Boston
Lewis, John E. McGill
Lewis, Laurence A. Clark
Lewis, Lawrence T. W. Illinois
Lewis, Peirce F. Pennsylvania State

Lewis, Richard T. Kent State
Lewis, Robert A. Columbia
Lewthwaite, Gordon R. CSU, Northridge
Ley, David British Columbia
Liaw, Kao-Lee McMaster
Libbee, Michael Oklahoma
Lieber, Stanley R. SIU-Carbondale
Lier, John CSU, Hayward
Limbird, Arthur G. Calgary
Lin, Gong-Yuh CSU, Northridge
Lind, Aulis O. Vermont
Lindberg, James B. Iowa
Lineback, Neal G. Alabama
Linn, H. D. Saskatchewan
Lins, Thomas W. Mississippi State
Little, Richard S. W. Virginia
Lloyd, Howell C. Miami-Ohio
Lloyd, Robert E. South Carolina
Lloyd, William J. Riverside
Lobb, C. Gary CSU, Northridge
Loeffler, M. John Colorado
Loeser, Cornelius J. N. Illinois
Logan, Byron E. Miami-Ohio
Logan, Richard F. UCLA
Long, Robert G. Tennessee
Longbrake, David B. Denver
Longwell, A. Richard W. Illinois
Lonsdale, Richard E. Nebraska-Lincoln
Lord, J. Dennis N. Carolina-Charlotte
Lossau, Carl S. SIU-Edwardsville
Louder, Dean Laval
Lounsbury, John F. Arizona State
Louviere, Jordan J. Wyoming
Lovingood, Paul E. South Carolina
Lowe, John George Washington
Lowry, Mark II W. Kentucky
Lowry, William P. Illinois
Loy, W. G. Oregon
Lozowski, Edward P. Alberta
Lu, Jonathan J. N. Iowa
Lucas, Robert C. Montana
Luckman, B. H. W. Ontario
Lueck, Vaughn Pittsburgh
Lukermann, Fred E. Minnesota
Lundgren, Jan McGill
Luten, Daniel B. Berkeley
Lycan, D. R. Portland State
Lydolph, Paul E. Wisconsin-Milwaukee
Lyon, Edward E. Ball State

Ma, Lawrence Akron
Machowski, Richard W. N. Michigan
MacIver, Donald York
MacKay, David B. Indiana
Mackay, J. Ross British Columbia
MacKinnon, Ross D. SUNY-Binghamton
MacMahan, H. A. Jr. E. Michigan
MacPhail, Donald D. Colorado
MacPherson, A. Simon Fraser
Macpherson, Alan G. Memorial
Macpherson, Joyce Brown Memorial
Mage, Julius A. Guelph
Mahaney, William C. York
Malecki, Edward J. Oklahoma
Mancell, Robert B. E. Michigan
Mandell, Paul I. Columbia
Manners, Ian R. Texas
Mannion, John J. Memorial
Manson, Gary Michigan State
Marble, Duane F. SUNY-Buffalo
Marcus, Melvin G. Arizona State
Marcus, Robert B. Florida
Maresh, Thomas J. Oregon State
Marionneaux, R. L. E. Kentucky
Markham, Charles G. CSU, Fresno
Marlow, Loran D. SIU-Edwardsville
Marotz, Glen A. Kansas
Marple, Robert P. Central Michigan
Marr, Paul D. SUNY-Albany
Marshall, John U. York
Martin, Curtis V. Towson State
Martin, Gene E. CSU, Chico
Martin, Kenneth R. W. Illinois
Martinson, Tom L. Ball State
Martis, Kenneth W. Virginia
Marts, Marion E. Washington
Massam, Bryan H. McGill, York
Mather, E. Cotton Kentucky, Minnesota
Mather, John R. Delaware
Matley, Ian M. Michigan State
Matthai, James P. Murray State
Matthews, B. Waterloo
Matthews, O. Paul Idaho
Mattingly, Paul F. Illinois State
Matzke, Gordon Oregon State
Mausel, Paul Indiana State
Maxfield, Donald W. N. Illinois
Maxfield, O. Orland Arkansas
Maxwell, Gayle Oklahoma State
May, Joseph A. Toronto
Mayer, Harold M. Wisconsin-Milwaukee
Mayer, Jonathan Washington
Mayfield, Robert C. Boston
Mazzucchelli, Vincent CSU, Los Angeles
McArthur, David S. San Diego State
McArthur, Neil M. York
McBoyle, Geoffrey R. Waterloo
McCall, William J. Clark
McCann, S. Brian McMaster
McCaughey, J. H. Queen's
McCleary, George F. Jr. Kansas
McColl, Robert W. Kansas
McConnell, Harold Florida State
McConnell, J. G. Saskatchewan
McConnell, James E. SUNY-Buffalo

McCoy, Roger M. Utah
McCune, Shannon Florida
McDaniel, R. W. Ontario
McDonald, James R. E. Michigan
McGrath, G. Queen's
McGregor, John R. Indiana State
McIntire, Elliot G. CSU, Northridge
McIntire, William G. Louisiana State
McIntosh, C. Barron Nebraska-Lincoln
McIntosh, Terry Kentucky
McIntyre, Michael P. San José State
McKay, Ian A. Wilfrid Laurier
McKee, Jesse O. S. Mississippi
McKim, Wayne L. Towson State
McKnight, Tom L. UCLA
McLellan, Alexander G. Waterloo
McLennan, Marshall S. E. Michigan
McManis, Douglas Columbia, Columbia TC
McMurry, John H. Wilfrid Laurier
McNee, Robert B. Cincinnati
McNulty, Michael L. Iowa
McPherson, Harold J. Alberta
McTaggert, W. Donald Arizona State
Meade, Melinda S. Georgia
Meader, Edwin E. W. Michigan
Mealor, W. T. Jr. S. Mississippi
Meeks, Harold A. Vermont
Meentemeyer, Vernon G. Georgia
Meierding, Thomas C. Delaware
Meihoefer, Hans-J. San Francisco State
Meinig, Donald W. Syracuse
Mendelson, Robert E. SIU-Edwardsville
Mercer, John British Columbia
Merrens, H. Roy York
Merrill, Gordon C. Carleton
Messenger, A. Steven N. Illinois
Meuter, Ralph T. CSU, Chico
Meyer, John Harvard
Meyer, Kenneth C. Temple
Michael, Henry N. Temple
Michel, Aloys A. Rhode Island
Micklewright, Malcolm A. Victoria
Micklin, Philip P. W. Michigan
Mieczkowski, Z. Manitoba
Mihalyi, Louis J. CSU, Chico
Mikesell, Marvin W. Chicago
Miles, Edward J. Vermont
Millard, William NE Illinois
Miller, David H. Wisconsin-Milwaukee
Miller, E. Joan Illinois State
Miller, E. Willard Pennsylvania State
Miller, Halsey W. SIU-Edwardsville
Miller, Theodore K. Indiana
Miller, Victor C. Indiana State
Miller, Vincent P. Indiana U. of Pa.
Milton, J. D. Manitoba
Minghi, Julian V. South Carolina
Mings, Robert C. Arizona State
Minkel, Clarence W. Michigan State
Missavage, Joseph M. SUNY-Binghamton
Mitchell, Bruce Waterloo
Mitchell, J. Kenneth Rutgers
Mitchell, Lisle S. South Carolina
Mitchell, Richard A. SUNY-Buffalo
Mitchell, Robert D. Maryland
Moellering, Harold Ohio State
Mohamed, Harold NE Illinois
Momsen, Richard P., Jr. Calgary
Monahan, Robert L. W. Washington
Monk, Janice J. Illinois
Monmonier, Mark S. Syracuse
Monsebroten, Dale R. E. Kentucky
Monte, Judith A. South Carolina
Montgomery, Richard C. CSU, Fresno
Moodie, D. W. Manitoba
Mookherjee, Debnath W. Washington
Moore, E. G. Queen's
Moore, Jack E. Oklahoma State
Moore, T. R. McGill
Morain, Stanley A. New Mexico
Moran, Denis Oregon College of Ed.
Morgan, Donald L. CSU, Fresno
Moriarty, Barry N. Carolina-Chapel Hill
Morissonneau, Christian Laval
Morley, C. David York
Morrill, Richard L. Washington
Morrison, Joel L. Wisconsin-Madison
Moss, Michael R. Guelph
Mouat, David A. Arizona
Moulton, Benjamin Indiana State
Mower, Roland D. North Dakota
Mrowka, J. P. Oregon
Muckleston, Keith W. Oregon State
Muehrcke, Phillip C. Wisconsin-Madison
Mulhauser, John Akron
Müller, Fritz McGill
Muller, Jean-Claude Alberta
Muller, Peter O. Temple
Muller, Robert A. Louisiana State
Müller-Wille, L. McGill
Mulligan, G. Queen's
Mullner, Ross Chicago State
Muncaster, Russell W. Wilfrid Laurier
Muraco, William A. Toledo
Murdie, Robert A. York
Murphey, Rhoads Michigan
Murphy, Peter E. Victoria
Murphy, Raymond E. Clark
Murphy, Richard E. New Mexico
Murray, Malcolm A. Georgia State
Murton, Brian J. Hawaii
Myers, Merle W. Mississippi State
Myers, Theodore C. Colorado
Myles, Edward L. CSU, Chico

Nadeau, Roger Sherbrooke

Nash, Peter H. Waterloo
Nash, Thomas Akron
Nasse, George N. CSU, Fresno
Naughton, Patrick W. Memorial
Nazzaro, Andrew A. E. Michigan
Neel, Earl M. Arkansas
Nelson, Howard J. UCLA
Nelson J. G. Waterloo
Nelson, Ronald E. W. Illinois
Neuman, Robert W. Louisiana State
Newman, James L. Syracuse
Newton, Milton B. Louisiana State
Nichols, David A. Riverside
Nicholson, N. L. W. Ontario
Nickling, William G. Guelph
Niddrie, David L. Florida
Niemi, Alfred O. N. Michigan
Nieswand, George A. Rutgers
Nietschmann, B. Q. Berkeley
Nijim, Basheer K. N. Iowa
Nishi, Midori CSU, Los Angeles
Nixon, Dennis W. Rhode Island
Nkemdirim, L. C. Calgary
Noble, Allen G. Akron
Noble, William A. Missouri-Columbia
Nolan, Mary Lee Oregon State
Norcliffe, Glen B. York
Norris, Darrell A. McMaster
Norris, Robert E. Oklahoma State
Norsworthy, Stanley F. CSU, Fresno
North, Margaret E. A. British Columbia
North, Robert N. British Columbia
Northam, Ray M. Oregon State
Nostrand, Richard L. Oklahoma
Novosielska, E. Clark
Nowak, W. Stan Memorial
Nunley, Robert E. Kansas
Nunnally, Nelson N. Carolina-Charlotte
Nystrom, J. Warren George Washington
Nystuen, John D. Michigan

Oberlander, Theodore M. Berkeley
O'Brien, Bob R. San Diego State
Odland, John J. Indiana
Officer, E. Roy Waterloo
Ogden, Lawrence E. Michigan
Ogrosky, Charles Rutgers
Ojala, Carl F. E. Michigan
Oke, T. R. British Columbia
O'Keefe, Philip Clark
Oldham, Charles C. SW Louisiana
Oliver, John E. Indiana State
Olmstead, Clarence Wisconsin-Madison
O'Loughlin, John V. Illinois
Olson, Judy M. Boston
Olson, Sherry McGill
O'Malley, Mary A. Clark
Onesti, Lawrence Indiana
Ongley, E. D. Queen's
O'Riordan, T. Clark
Orme, Antony R. UCLA
Ormrod, Richard K. N. Colorado
Orr, Douglas M., Jr. N.Carolina-Charlotte
Orr, R. William Ball State
Osborne, B. S. Queen's
Osleeb, Jeffrey Boston
Oster, Clint Harvard
Ostresh, Lawrence M. Wyoming
O'Sullivan, Patrick M. Northwestern
Outcalt, Samuel I. Michigan
Outwater, Richard CSU, Long Beach
Owen, Donald E. Indiana State

Packer, R. W. W. Ontario
Padick, Clement CSU, Los Angeles
Paganini, Louis A. Florida
Page, Cedric D. Colorado
Pagenhart, Thomas H. CSU, Hayward
Pal, Dilip K. Ball State
Palm, Risa I. Colorado
Pannell, Clifton W. Georgia
Papageorgiou, George McMaster
Paquette, Romain Sherbrooke
Parker, L. Mayland Arizona State
Parkhurst, Judith I. Wayne State
Parry, John T. McGill
Parson, Helen Wilfrid Laurier
Parsons, James J. Berkeley
Patten, George P. Ohio State
Patterson, James E. Illinois State
Pattison, William D. Chicago
Patton, C. P. Oregon
Patton, Donald J. Florida State
Paul, Alexander H. Regina
Pawling, John W. Temple
Payne, James E. Indiana U. of Pa.
Peake, Jeffrey S. Nebraska-Omaha
Pearson, Ross N. E. Michigan
Pease, James R. Oregon State
Pease, Robert Riverside
Pease, Steven R. San Francisco State
Pedersen, J. Jay CSU, Northridge
Pederson, Eldor George Washington
Pederson, Leland R. Arizona
Peet, J. Richard Clark
Pennington, C. W. Texas A&M
Peruzzi, Duilio San José State
Peterman, William Bowling Green State
Peters, Bernard C. N. Michigan
Peters, Gary CSU, Long Beach
Petersen, Albert J. W. Kentucky
Peterson, Raymond A. Ball State
Peterson, Rex M. Nebraska-Lincoln
Petterson, Janet H. E. Carolina
Petzold, Donald Maryland

Peucker, T. K. Simon Fraser
Pfister, Robert E. Victoria
Philbrick, A. K. W. Ontario
Phillips, Mary Viola Pittsburgh
Phillips, Phillip D. Kentucky
Phipps, Michel Ottawa
Pickard, Claude E. W. Kentucky
Picker, Robert D. San Francisco State
Pierce, J. T. Simon Fraser
Pigozzi, Bruce W. Michigan State
Pillsbury, Richard Georgia State
Pinther, Miklos Columbia
Pipkin, John S. SUNY-Albany
Pirie, Peter N. D. Hawaii
Pittas, Michael John Harvard
Pitts, Forrest R. Hawaii
Platt, Rutherford H. Chicago
Pleva, E. G. W. Ontario
Ploegaerts, Léon Ottawa
Popenoe, Hugh Florida
Porteous, J. Douglas Victoria
Porter, Philip W. Minnesota
Potvin, Georges Ottawa
Poulin, André Sherbrooke
Pouliot, Marcel Sherbrooke
Poulsen, Thomas M. Portland State
Pounds, Norman J. G. Indiana
Powell, Douglas R. Berkeley
Pred, Allan R. Berkeley
Preston, Richard E. Waterloo
Price, E. T. Oregon
Price, Larry W. Portland State
Prior, D. Clark
Prunty, Merle C. Georgia
Pryde, Philip R. San Diego State
Psuty, Norbert P. Rutgers
Purvis, John C. South Carolina
Puzo, Bill CSU, Fullerton
Pyle, Gerald Akron

Quandt, Eldor C. W. Michigan
Quastler, Imre E. San Diego State
Quick, Horace F. Colorado
Quillen, Dennis E. E. Kentucky
Qutub, Musa NE Illinois

Radell, David CSU, Los Angeles
Radford, John P. York
Rains, R. Bruce Alberta
Rainwater, Lee Harvard
Raitz, Karl B. Kentucky
Ralston, Bruce A. Tennessee
Raney, Franklin C. W. Washington
Ransome, Jack Windsor
Raphael, C. Nicholas E. Michigan
Rathburn, Robert R. Louisiana State
Rau, Herbert L. Jr. Chicago State
Rauch, Henry W. Virginia
Raup, Hallock F. Kent State
Raup, Henry A. W. Michigan
Raveneau, Jean Laval
Ray, Arthur J. York
Ray, D. Michael Carleton
Rayner, John N. Ohio State
Reed, Robert R. Berkeley
Reeds, Lloyd G. McMaster
Rees, John CSU, Los Angeles
Rees, Peter W. Delaware
Rees, R. Saskatchewan
Reeves, Richard W. Arizona
Rehder, John B. Tennessee
Reider, Richard G. Wyoming
Reilly, Timothy F. SW Louisiana
Reiman, Robert E. Appalachian State
Reinelt, Erhard R. Alberta
Reitan, Clayton H. N. Illinois
Reith, Gertrude M. CSU, Fullerton
Rengert, George F. Temple
Rense, William C. SW Louisiana
Retallick, H. J. Nebraska-Omaha
ReVelle, Charles Johns Hopkins
Reynolds, David R. Iowa
Rheault, Michel Sherbrooke
Rheumer, G. A. Simon Fraser
Rhynsburger, W. Portland State
Ricci, Paolo Ottawa
Rice, John G. Minnesota
Richards, J. H. Saskatchewan
Richardson, Miles R. Louisiana State
Ridd, Merrill K. Utah
Riddell, J. B. Queen's
Rieck, Richard L. W. Illinois
Riggs, Karl A. Mississippi State
Rinier, James A. Kent State
Ritchot, Gilles Laval
Roberge, Roger Ottawa
Roberts, M. C. Simon Fraser
Roberts, William M. S. Mississippi
Robinson, Arthur H. Wisconsin-Madison
Robinson, David J. Syracuse
Robinson, J. Lewis British Columbia
Robinson, Peter J. N. Carolina-Chapel Hill
Roder, Wolf Cincinnati
Rodgers, Allan L. Pennsylvania State
Roepke, Harlan H. Ball State
Roepke, Howard G. Illinois
Rogerson, Robert J. Memorial
Rogers, Peter Harvard
Rogge, J. R. Manitoba
Roine, Jarl N. Michigan
Romsa, Gerald Windsor
Rooney, John F., Jr. Oklahoma State
Rose, Harold M. Wisconsin-Milwaukee
Roseman, Curtis C. Illinois

Rosenfeld, Charles L. Oregon State
Rosenthal, Gerson M., Jr. Chicago
Rosenvall, Lynn A. Calgary
Ross, Elizabeth A. Michigan State
Ross, William M. Victoria
Roswell, Charles Maryland
Roth, Irvin Chicago State
Rouse, Wayne R. McMaster
Rowles, Graham W. Virginia
Rowles, Ruth W. Virginia
Rowntree, Lester B. San José State
Rowntree, Rowan Syracuse
Roy, Jean-Marie Sherbrooke
Rubenstein, James M. Miami-Ohio
Rudd, Robert D. Denver
Ruddle, Kenneth Hawaii
Rudzitis, Gundars Texas
Rugg, Dean S. Nebraska-Lincoln
Ruggles, R. I. Queen's
Rundquist, D. C. Nebraska-Omaha
Rushton, Gerard Iowa
Russell, Ernest E. Mississippi State
Russwurm, Lorne H. Waterloo
Rutherford, G. K. Queen's
Ryan, Carolyn J. Temple
Ryan, Kenneth B. Cincinnati

Saarinen, Thomas F. Arizona
Sabbagh, Michael E. Texas
Sack, Robert D. Wisconsin-Milwaukee
Sagar, R. B. Simon Fraser
Sahir, Abul H. Regina
St. Arnaud, R. O. Saskatchewan
St-Onge, Denis Ottawa
Saint-Yves, Maurice Laval
Sale, Randall D. Wisconsin-Madison
Salisbury, Neil E. Iowa
Salter, Christopher L. UCLA
Samuels, Marwyn British Columbia
Samuelson, Alan C. Ball State
Sanders, Ralph A. Syracuse
Sanderson, Marie Windsor
Sanger, Chesley W. Memorial
Sargent, Charles S., Jr. Arizona State
Sas, Anthony South Carolina
Sauer, Jonathan D. UCLA
Saunderson, Houston Wilfrid Laurier
Sawatzky, H. L. Manitoba
Scantling, Frederick CSU, Long Beach
Scarlett, Maurice J. Memorial
Schafer, Robert Harvard
Scheidt, Melvin E. Johns Hopkins
Schick, A. Clark
Schlichtmann, Hans G. Regina
Schmidt, C. Gilbert Colorado
Schmidt, Else T. A. Illinois State
Schmidt, Oswald Pittsburgh
Schmitt, Robert Wisconsin-Milwaukee
Schmudde, T. H. Tennessee
Schoen, Meera Ball State
Schroeder, Walter A. Missouri-Columbia
Schuh, Janet Rutgers
Schul, Norman W. N. Carolina-Charlotte
Schultz, Herbert B. Davis
Schultz, Ronald Florida Atlantic
Schwartzberg, Joseph E. Minnesota
Schwarz, David E. San José State
Schwarz, Harry E. Clark
Schwendeman, J. R., Jr. E. Kentucky
Schwendeman, J. R., Sr. E. Kentucky
Schwind, Paul J. Hawaii
Scott, Allen J. Toronto
Scott, Earl P. Minnesota
Scott, James W. W. Washington
Scott, Ralph C. Towson State
Scott, Steven L. N. Colorado
Scott, Thomas W. Arkansas
Scripter, Sam M. W. Idaho
Searl, G. H. Oregon
Seawall, Frank CSU, Chico
Sebor, Milos M. E. Kentucky
Seifried, Neil R. M. Alberta
Seldin, Daniel Indiana
Self, Huber Kansas State
Selya, Roger M. Cincinnati
Semple, R. Keith Ohio State
Sewell, W. R. Derrick Victoria
Seyler, H. L. Kansas State
Shabad, Theodore Columbia
Shannon, Gary W. Florida
Shapiro, Michael Harvard
Sharon, D. Clark
Sharp, Virginia L. Washington
Sharpe, Christopher Memorial
Sharpe, David M. SIU-Carbondale
Shaudys, Vincent K. CSU, Hayward
Shaw, John Alberta
Shaw, R. McMaster
Shea, Philip E. Carolina
Shear, James A. Georgia
Shelton, Marlyn L. Davis
Sheppard, Eric S. Minnesota
Sherman, John C. Washington
Sheskin, Ira M. Miami
Shimkin, Demitri B. Illinois
Shirey, Ruth Indiana U. of Pa.
Shortridge, James Kansas
Showalter, Gerald R. Ball State
Shrestha, Mohan Bowling Green State
Shroder, John F., Jr. Nebraska-Omaha
Shuman, Stanley B. Illinois State
Siddall, William R. Kansas State
Siddiqi, Akhtar Indiana State
Siemens, Alfred H. British Columbia
Silberfein, Marilyn Temple

Silvernail, R. G. South Carolina
Simkins, Paul D. Pennsylvania State
Simmons, James W. Toronto
Simon, Phillip SIU-Edwardsville
Simonett, David S. Santa Barbara
Simoons, Frederick J. Davis
Simpson, Jefferson N. Carolina-Charlotte
Sinclair, Robert Wayne State
Sitwell, O. F. George Alberta
Skaggs, Richard H. Minnesota
Slaymaker, H. O. British Columbia
Slorp, Lee H. Miami-Ohio
Smil, V. Manitoba
Smit, Barry E. Guelph
Smith, Albert W. Colorado
Smith, Bruce Bowling Green State
Smith, Christopher J. Oklahoma
Smith, David A. SUNY-Buffalo
Smith, Derald G. Calgary
Smith, E. G. Oregon
Smith, Fred Harvard
Smith, G. C. Manitoba
Smith, Michael W. Carleton
Smith, Peter J. Alberta
Smith, R. H. T. British Columbia
Smith, Richard G. W. Washington
Smith, Richard M. Michigan State
Smith, Richard V. Miami-Ohio
Smith, S. Ivan Alberta
Smith, Samuel W. Indiana State
Smith, Terence R. Santa Barbara
Smith, Thomas R. Kansas
Smole, William J. Pittsburgh
Snead, Rodman E. New Mexico
Solomon, Leslie D. South Carolina
Sommarstrom, Allan R. Hawaii
Sommers, Lawrence M. Michigan State
Sonnenfeld, Joseph Texas A&M
Sopher, David E. Syracuse
Sorenson, Curtis J. Kansas
Sorenson, John H. Hawaii
South, Robert B. Cincinnati
Sparrow, Christopher J. Toronto
Spector, A. N. Queen's
Spelt, Jacob Toronto
Spence, Edward S. York
Spinelli, Joseph Bowling Green State
Spiro, James Rhode Island
Splansky, Joel B. CSU, Long Beach
Spurlock, Carl W. Florida
Squires, Roderick H. Minnesota
Srivastava, Harishankar Ottawa
Stafford, Howard A. Cincinnati
Stager, J. K. British Columbia
Stallings, Emmett F. SW Louisiana
Stanek, Oleg Sherbrooke
Stanislawski, Dan Arizona
Stankey, George H. Montana
Stanley, Raymond W. San José State
Stanley, William R. South Carolina
Stapleton, Clare Wisconsin-Madison
Starsinic, Donald George Washington
Staveley, Michael Memorial
Staver, Allen E. N. Illinois
Stebelsky, Ihor Windsor
Steed, Guy Ottawa
Steila, Donald E. Carolina
Steiner, Rodney CSU, Long Beach
Steinitz, Carl Harvard
Steinke, Theodore R. South Carolina
Stene, L. P. Manitoba
Stephenson, Richard A. E. Carolina
Stepko, George W. Virginia
Sterling, Henry S. Wisconsin-Madison
Sternberg, H. O'Reilly Berkeley
Stevens, George P. N. Illinois
Stevens, Richard E. Colorado
Stevenson, Marshall L. Towson State
Stevenson, William H. Ball State
Steward, Henry J. Ohio State
Stewart, Norman Wisconsin-Milwaukee
Stillman, Calvin W. Rutgers
Stillwell, H. Daniel Appalachian State
Stine, James E. Oklahoma State
Stoddard, Robert H. Nebraska-Lincoln
Stoltman, Joseph P. W. Michigan
Stone, Kirk H. Georgia
Stoops, George Mankato State
Storey, Keith J. Memorial
Stoveken, Ruth Wisconsin-Milwaukee
Stover, Stephen L. Kansas State
Strahler, Alan H. Santa Barbara
Street, John M. Hawaii
Strohmeyer, Donald SIU-Edwardsville
Stuart, Alfred W. N. Carolina-Charlotte
Stuart, Merrill M. CSU, Fresno
Stutz, Frederick, P. San Diego State
Subins, Gunars Wilfrid Laurier
Sublett, Michael D. Illinois State
Suchan, Kenneth E. Toledo
Sullivan, Michael E. Ball State
Summers, William F. Memorial
Sutherland, Stephen M. Oklahoma
Sutton, Imre CSU, Fullerton
Swager, Ronald J. E. Carolina
Swartz, Robert D. Wayne State
Symanski, Richard Texas

Taaffe, Edward J. Ohio State
Taaffe, Robert N. Indiana
Taketa, Richard A. Michigan
Takizawa, Bill W. San José State
Tan, Kok-Chiang Guelph
Tata, Robert Florida Atlantic
Tatham, George York

Taube, Sten A. N. Michigan
Taylor, A. M. Queen's
Taylor, D. R. F. Carleton
Taylor, H. W. W. Ontario
Taylor, James W. San Diego State
Taylor, James W. W. Kentucky
Taylor, S. Martin McMaster
Tepper, Leonard M. P. Indiana U. of Pa.
Terich, Thomas A. W. Washington
Terjung, Werner H. UCLA
Teshera, Robert W. W. Washington
Thoman, Richard S. CSU, Hayward
Thomas, Benjamin E. UCLA
Thomas, Bradford L. Kent State
Thomas, Carol Harvard
Thomas, Morgan D. Washington
Thomas, Robert N. Michigan State
Thomas, William L. CSU, Hayward
Thompson, Bryan Wayne State
Thompson, Derek Maryland
Thompson, Gary L. Oklahoma
Thompson, John Illinois
Thompson, John H. Syracuse
Thompson, John L. Miami-Ohio
Thompson, Kenneth Davis
Thompson, Noble R. SIU-Edwardsville
Thorn, Colin E. Maryland
Thornton, Charles A. SIU-Edwardsville
Thouez, Jean-Pierre Sherbrooke
Thrall, Grant I. McMaster
Thrower, Norman J. W. UCLA
Thurston, David L. Mankato State
Timofeeff, Nicolay SUNY-Binghamton
Ting, William CSU, Los Angeles
Tinline, R. R. Queen's
Tirtha, Ranjit E. Michigan
Tiwari, R. C. Manitoba
Tobler, Waldo R. Santa Barbara
Todd, D. Manitoba
Tomey, Edward J. Harvard
Topp, G. Clarke Carleton
Torrance, J. Kenneth Carleton
Towber, Richard I. Kentucky
Towle, Jerry C. CSU, Fresno
Toy, Terrence J. Denver
Tracie, C. J. Saskatchewan
Travis, Richard W. Utah
Traylor, Charles T. S. Mississippi
Treichel, Georg San Francisco State
Tremblay, Germain Laval
Trenhaile, Alan Windsor
Trewartha, Glenn T. Wisconsin-Madison
Trimble, Stanley W. UCLA
Trotier, Louis Laval
Trott, Charles E. N. Illinois
Trotter, John E. Illinois State
Troughton, M. J. W. Ontario
True, Philip George Washington
Trussell, Margaret E. CSU, Chico
Trussler, Susan Michigan
Tschannerl, G. Clark
Tuan, Yi-Fu Minnesota
Tuller, Stanton E. Victoria
Tunbridge, John E. Carleton
Turbeville, Daniel E. W. Washington
Turner, B. L. Oklahoma
Turner, Daniel S. E. Michigan
Turner, Eugene J. CSU, Northridge
Tweedie, Steven W. Oklahoma State
Tyner, Judith A. CSU, Long Beach

Ulack, Richard Kentucky
Ulrich, Roger S. Delaware
Urell, Joseph T. Miami-Ohio
Uren, Philip E. Carleton
Urquhart, A. W. Oregon

Vale, Thomas R. Wisconsin-Madison
Vance, James E., Jr. Berkeley
Vance, Jean San Francisco State
Vandall, Paul Windsor
van der Eyk, J. J. Toronto
Vanderford, Jay B. Oregon College of Ed.
Vanderhill, Burke G. Florida State
VanderMeer, Canute Vermont
VanderMeer, Paul CSU, Fresno
Van Doorninck, F., Jr. Texas A&M
Vann, John H. CSU, Hayward
Van Riper, J. E. SUNY-Binghamton
van Spyk, Robert Cincinnati
Vayda, Andrew P. Rutgers
Velikonja, Joseph Washington
Vent, Herbert J. Idaho
Vermeer, Donald E. Louisiana State
Vernon, Phillip H. Pittsburgh
Vicero, Ralph D. CSU, Northridge
Vickers, Sandra J. Pittsburgh
Vigier, Francois Harvard
Villeneuve, Paul-Yvon Laval
Villmow, Jack R. N. Illinois
Vinge, Clarence L. Michigan State
Vining, James W. W. Illinois
Visser, Sent Texas A&M
Vitale, James E. SUNY-Albany
Vogel, Philip E. Nebraska-Omaha
Vreeken, W. J. Queen's
Vuicich, George W. Michigan

Wacker, Peter O. Rutgers
Waddell, Eric McGill
Wade, Donald Oklahoma State
Wagner, P. L. Simon Fraser

Walby, Karen Florida State
Walcott, Wayne N. Carolina-Charlotte
Wales, Robert W. S. Mississippi
Walker, David F. Waterloo
Walker, Gerald E. York
Walker, H. J. Louisiana State
Walker, Richard A. Berkeley
Walker, Wilma J. E. Kentucky
Wall, Geoffrey Waterloo
Wallace, A. Iain Carleton
Walter, Bob J. Ohio
Walter, Hartmut UCLA
Walters, W. D., Jr. Illinois State
Wang, I-shou CSU, Northridge
Ward, David Wisconsin-Madison
Ward, Robert M. E. Michigan
Warkentin, John York
Warman, Henry J. Clark
Warntz, W. W. Ontario
Warrick, Richard A. Clark
Waters, Nigel M. Calgary
Wayne, William J. Nebraska-Lincoln
Weaver, David C. Alabama
Weaver, John C. Wisconsin-Milwaukee
Webb, John W. Minnesota
Webb, Kempton E. Columbia
Webb, Robert M. SW Louisiana
Webber, Michael J. McMaster
Weber, Charles E. Indiana U. of Pa.
Weightman, Barbara A. CSU, Fullerton
Weir, T. R. Manitoba
Weissbrod, Richard Johns Hopkins
Welch, Ronald Windsor
Welch, Roy A. Georgia
Wendland, Wayne M. Illinois
Wernstedt, F. L. Pennsylvania State
Wesche, Rolf Ottawa
West, Niels Rhode Island
West, Robert C. Louisiana State
Wester, Lyndon L. Hawaii
Westfall, John E. San Francisco State
Westman, Walter E. UCLA
Wheatley, Paul Chicago
Whebell, C. F. J. W. Ontario
Wheeler, James O. Georgia
Wheeler, Jean D. CSU, Long Beach
Wheeler, Jesse H. Missouri-Columbia
White, Andrew N. Hawaii
White, Gilbert F. Colorado
White, Kenneth L. Texas A&M
White, Rodney R. Toronto
White, Stephen E. Kansas State
White, Wayne Oregon College of Ed.
Whitney, Herbert A. Wilfrid Laurier
Whitney, Joseph B. R. Toronto
Whyte, Anne V. T. Toronto
Wiedel, Joseph W. Maryland
Wightman, W. R. W. Ontario
Wikkramatileke, R. Victoria
Wilbanks, Thomas J. Oklahoma
Wilhelm, Hubert G. H. Ohio
Wilkinson, Paul F. York
Wilkinson, Thomas P. Carleton
Williams, Anthony V. Pennsylvania State
Williams, Donald L. Illinois
Williams, Jack Michigan State
Williams, Jerry L. New Mexico
Williams, Jerry R. CSU, Chico
Williams, Lynden S. Ohio
Williams, Peter J. Carleton
Willmott, Cort J. Delaware
Wills, Bernt L. North Dakota
Wilms, Douglas C. E. Carolina
Wilson, Andrew W. Arizona
Wilson, J. W. Simon Fraser
Wilson, James N. CSU, Long Beach
Wilson, M. R. Saskatchewan
Wilson, Michael P. N. Carolina-Charlotte
Wilson, Paul B. Montana
Wilson, Robert T. W. Illinois
Winberry, John J. South Carolina
Wingert, Everett A. Hawaii
Winsberg, Morton D. Florida State
Winslow, David C. Indiana U. of Pa.
Winsor, Mark San Francisco State
Winsor, Roger A. Appalachian State
Winston, Barbara NE Illinois
Winter, Robert E. CSU, Hayward
Winters, Harold A. Michigan State
Wise, Robert B. SIU-Edwardsville
Wiseman, Robert F. Kansas
Wishart, David J. Nebraska-Lincoln
Withington, W. A. Kentucky
Wittick, Robert I. Michigan State
Wixman, R. Oregon
Wohlenberg, Ernest H. Indiana
Woldenberg, Michael SUNY-Buffalo
Wolf, Laurence G. Cincinnati
Wolfe, Jacqueline S. Guelph
Wolfe, Roy I. York
Wolman, M. Gordon Johns Hopkins
Wonders, William C. Alberta
Wong, S. T. Simon Fraser
Woo, Ming-ko McMaster
Wood, Colin J. B. Victoria
Wood, J. David York
Wood, Harold A. McMaster
Wood, Perry S. Mankato State
Wood, Susan Indiana U. of Pa.
Woodruff, James F. Georgia
Woodward, David Chicago, Northwestern
Worden, Marshall A. Arizona
Wright, John Ross Ottawa
Wright, Richard D. San Diego State
Wynn, Graeme British Columbia

Yahr, Charles C. San Diego State
Yapa, Lakshman Pennsylvania State
Yarbrough, Ronald E. SIU-Edwardsville
Yasso, Warren E. Columbia
Yeates, M. H. Queen's
Yinger, John McHenry Harvard
Yoshioka, Gary Maryland
Young, Bruce S. Wilfrid Laurier
Young, Cyrus W. Miami-Ohio
Young, Robert A. CSU, Fullerton
Young, William J. Temple
Youngmann, Carl Washington
Yoxall, William H. Memorial
Yuill, Robert S. Central Michigan

Zacur, Maurice M. Indiana U. of Pa.
Zakrzewska-Borowiecki, B. Wisconsin-Milwaukee
Zannaras, Georgia Cincinnati
Zelinsky, Wilbur Pennsylvania State
Zimmerman, A. L. Montana
Zink, Norah E. Indiana U. of Pa.
Zobel, Herbert L. Kent State
Zobler, Leonard Columbia
Zonn, Leo E. Arizona State
ZumBrunnen, Craig Washington

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CONNECTICUT
- Central Connecticut State College

FLORIDA
- University of South Florida

ILLINOIS
- Eastern Illinois University
- University of Illinois, Chicago Circle

MARYLAND
- Frostburg State College

MASSACHUSETTS
- Boston State College
- Bridgewater State College
- Worcester State College

MINNESOTA
- Bemidji State University
- St. Cloud State University

MONTANA
- Montana State University

NEVADA
- University of Nevada-Reno

NEW JERSEY
- Montclair State College

NORTH CAROLINA
- Western Carolina University

PENNSYLVANIA
- Bloomsburg State College
- California State College
- Slippery Rock State College
- West Chester State College

SOUTH DAKOTA
- South Dakota State University

TENNESSEE
- Memphis State University
- Middle Tennessee State University

TEXAS
- North Texas State University
- West Texas State University

UTAH
- Brigham Young University

WASHINGTON
- Eastern Washington State University

WEST VIRGINIA
- Marshall University

WISCONSIN
- University of Wisconsin, Green Bay